

## Pesticides Now Safer Than Ever, Officials Say

—SPECIAL REPORT—

By JOHN CIPPERLY

Croplife Washington Correspondent

WASHINGTON—A recent trade news statement has drawn into focus the old controversy over the usefulness and harmlessness of modern chemicals in the field of agriculture and their contribution to the general public. For a long time it had been thought that this issue was resolved with the passage of the Miller Amendment to the Food, Drug and Cosmetic Act of 1938.

Now, however, since this ghost has raised its head, it seems appropriate to bring the subject up with impartial government officials and persons connected with large agricultural interests to ascertain their current opinions on this subject. The results of this inquiry as reported below set forth a complete vindication of the present use of chemicals in agriculture. It reflects real progress, on the part of both the chemical industry and the agricultural economy.

Speaking for the highly-regarded USDA plant industry station at Beltsville, Md., is Dr. Edward F. Snipling, chief entomologist. He told Croplife that he recognizes the ideal

(Continued on page 5)

## Last Counties Removed From Medfly Quarantine

WASHINGTON—With the lifting on May 21 of the Mediterranean fruit fly quarantine regulations in the last remaining regulated portions of Dade and Lee counties, Florida, the U.S. Department of Agriculture and the state of Florida have completed after a single year's campaign the eradication of this fruit and vegetable pest in all federally regulated counties of the state. The initial quarantine was put into effect on May 16, 1956.

## Formulator Group Stresses Better Selling at Meeting

By JAMES W. MILLER

Croplife New York Office

VIRGINIA BEACH, VA.—The vacation-like atmosphere of the Cavalier Club furnished a pleasant background for mutual understanding of industry problems discussed by the Carolinas-Virginia Pesticide Formulators Assn. at its annual spring meeting here May 13-15. One hundred ten formulators, allied tradesmen and their wives participated in the program which included equal parts of business and social recreation.

Throughout the sessions the emphasis was on better selling methods.

# 1957 Pesticide Supplies Ample; Report Sums Up Lively Season

Table 1—Pesticide Disappearance, Requirements

Pesticide	Domestic disappearance at producers' level			Requirements for domestic consumption in 1956-57	
	1953-54	1954-55	1955-56	Minimum	Maximum
	1,000 lb.	1,000 lb.	1,000 lb.	1,000 lb.	1,000 lb.
Benzene hexachloride 2/	8,500	7,800	9,150	7,000	9,000
Calcium arsenate	3,190	3,823	20,000	15,000	25,000
Copper sulfate 3/	80,257	77,988	74,360	30,000	45,000
2,4-D (acid equivalent) 4/	27,251	28,000 1/	32,000	27,000	34,000 1/
DDT	45,117	61,800	75,000	50,000	70,000
Lead arsenate	10,000	12,895	11,000	10,000	12,000
Pyrethrum 5/	7,610	7,712 1/	6,961	6,500	7,500
Rotenone 6/	6,128	5,954	6,350	6,000	6,500
2,4,5-T (acid) 4/	2,906	2,500	4,600	3,000	4,500 1/
Aldrin, chlordane, dieldrin, endrin, heptachlor, and toxaphene (combined)	35,420	57,000	61,570	40,000	50,000

- 1/ Based on available information; crop year is from October 1 to the following September 30.  
2/ Gamma isomer basis; includes lindane.  
3/ Disappearance for all domestic uses including industrial; requirements for agriculture only but include plant nutrient as well as fungicide use.  
4/ Export data not being reported separately, figures represent total disappearance at producers' level.  
5/ Revised imports; includes flower equivalent of imported pyrethrum extract.  
6/ Imports; includes cube and derris, both whole root and powdered.  
7/ Revised figure.

## IN DEPARTMENT OF COMMERCE REPORT

## Production of Nitric Acid Up in 1956; Substantial Increase in Capacity Noted

WASHINGTON—Production of original or unconcentrated nitric acid in 1956 totaled 2,716,800 short tons HNO<sub>3</sub> (100%), a gain from 2,590,300 short tons in 1955, according to a special report by C. Kenneth Horner, based on data compiled by the Chemical & Rubber Division, Business & Defense Services Administration, U.S. Department of Commerce.

Output of concentrated and fuming acids (above 67% HNO<sub>3</sub>) last year amounted to 395,300 short tons, compared with 447,300 short tons a year earlier.

U.S. annual capacity on Jan. 1, 1956 for production of nitric acid by oxidation of ammonia totaled 5,282,000 short tons, composed of 3,019,000 tons in commercial facilities and 2,263,000 tons in government (primarily ordnance) facilities. This capacity

represents an expansion of 77% over that in existence on Jan. 1, 1951.

Additional facilities under construction last year were scheduled to bring commercial capacity to 3,447,000 tons by Jan. 1, 1957, according to the report. Other completions expected this year will add 326,500 tons to the total by 1958.

When all reported expansions are completed, commercial nitric acid capacity will be 120% greater than in 1951.

Total capacity for production of concentrated nitric acid amounted to 227,125 tons (basis 100% HNO<sub>3</sub>) on Jan. 1, 1956, and is scheduled for expansion to 286,925 tons by the end of 1957, the report stated.

There were 38 commercial plants which reported production of nitric acid in 1955, and 11 others are scheduled for operation by the end of 1957. These 49 plants will be operated by 29 companies.

Of the 49 plants, 29, which account for 88% of the total private nitric acid capacity, have adjacent anhydrous ammonia facilities.

Sixteen of the commercial nitric acid plants, which belong to seven companies, have or will have facilities for concentrating acids to strengths above 67%, including red or white

(Continued on page 4)

## Contract Awarded

SACRAMENTO, CAL.—A \$46,000 contract to spray 1,750 acres of scrub oak in the combat training area at Fort Ord has been awarded to the Washburn Agricultural Service. Bryant Washburn, operator of the service, said the contract will run for 60 days.

WASHINGTON—By almost any measure, last year was a lively one for the pesticide industry, according to the 1956-57 Pesticide Situation Report, issued recently by the Commodity Stabilization Service, U.S. Department of Agriculture.

The report shows that last year: ★ Production of pesticidal materials was larger than ever before.

★ Domestic disappearance of lead-pesticides rose considerably.

★ Total dollar value of pesticide exports was up.

★ Output of DDT established a new record, benzene hexachloride (gamma basis) production was highest since 1952, production of the chlorinated hydrocarbon insecticides showed a substantial increase and sales of calcium arsenate rose markedly.

★ Producers' over-all stocks at the end of the 1955-56 crop year were somewhat greater than a year earlier.

Supplies of most pesticides will be ample in 1957, according to the report, which was prepared by Harold H. Shepard, Food and Materials Requirements Division of USDA. However, sudden outbreaks of pests could quickly absorb normal supplies, resulting in temporary local shortages, Mr. Shepard said.

Domestic disappearance and requirements of some pesticides are shown in Table 1 on this page. Production, exports and producers' stocks are shown in tables 2, 3 and 4 elsewhere in this issue.

The following is from the report:

According to surveys of manufacturers' inventories by USDA in co-operation with the National Agricultural Chemicals Assn., over-all stocks of pesticides were about the same in

(Continued on page 17)

## Fertilizer Plant Earnings Show Gain

WASHINGTON—Average hourly earnings for production workers in the fertilizer industry were \$1.61 in 1956, a gain from \$1.50 in 1955, the U.S. Department of Commerce has reported. Average weekly hours last year totaled 42.2, compared with 42.5 in 1955. During 1956 the average hourly earnings varied by months from a low of \$1.52 in March to a high of \$1.66 in December.

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## USDA Sees Gain in Chemical Thinning Of Fruit Trees

WASHINGTON—Thinning apples and other deciduous tree fruits by means of chemical sprays, to get fruit of better size and finish and to achieve annual rather than biennial bearing, is expected to gain increased popularity with commercial growers this year, the U.S. Department of Agriculture reports.

The use of dinitro compounds (mainly in the West) and hormone-type sprays (mainly in the East) during the past ten years has resulted not only in a more marketable fruit, say USDA horticulturists, but has broken up biennial bearing, or "on" and "off" years of heavy and light fruiting, thus making crops more uniform each year.

Another advantage is the lower cost

of spray thinning compared to hand thinning, and the need for less hand thinning. Growers have found that chemical thinning in the average orchard cuts costs of supplementary hand-thinning, when the latter operation is necessary, from one-fourth to nine-tenths, USDA says.

Hand thinning of heavily loaded trees may run as high as \$75 to \$200 per acre, compared with a spray application costing \$5 to \$6.

Horticulturists of USDA's Agricultural Research Service point out that fruit trees do a partial job of thinning themselves. Usually not more than 5 to 20% of apple blossoms set fruit. Thinning may be required to reduce fruit set by a relatively small percentage of some varieties, but it is especially needed on varieties that tend toward "snowball" blossoming and to biennial bearing habits.

Although many questions about chemical thinners have been answer-

ed through research, much remains to be learned about the actual mechanics of their operation on living trees. Identical applications on the same trees in succeeding years may have very different results, according to USDA.

Variations in results may be caused by timing of application, weather conditions, vigor of trees, concentration of spray material, varieties treated, thoroughness of pollination, winter injury, frost damage and other factors.

Yet the use of these sprays is of such economic value, say USDA fruit specialists, that fruit growers have been willing to employ them despite the variability of results.

Spray-thinning research began in the early 1930's when growers asked for a spray that would entirely defruit apple trees of varieties that would not pay their way. This eliminated the expense of spraying and harvesting a crop for which there was no market, USDA said.



E. Robert Little

## E. Robert Little Joins American Potash

LOS ANGELES—American Potash & Chemical Corp. has announced an expansion of its San Francisco district office, according to William M. Clines, western general sales manager. E. Robert Little, Jr., has joined the company as area sales representative under the direction of Robert Taft, district manager.

Mr. Little was with Olin Mathieson before joining AP&CC. Previously he was with Holly Sugar Corp. and Agriform Co. Born at Peabody, Mass., he received his bachelor of science degree in agriculture at Davis, Cal., campus of the University of California.

## Northeastern Branch Of ASA Plans Meeting

AMHERST, MASS.—The summer meeting of the Northeastern Branch of the American Society of Agronomy will convene June 18-20 at the University of Massachusetts here.

The meeting will open with an address by J. Paul Mather, president, to be followed by a talk on agricultural research in Massachusetts by Dr. Dale H. Sieling, dean of the College of Agriculture of the university. A soil bank symposium will follow, and the rest of June 18 will be given to a discussion of soil problems.

June 19 will be given over to the reading of formal papers on crops and soils and a fertilizer symposium. June 20, the final day of the meeting, will be spent in a trip to South Carver, Mass., for a discussion and demonstration of cranberry production by the staff of the Massachusetts Cranberry Experiment Station.

Housing and dining facilities for delegates and their families will be provided by the university, and a reception will be held in the evening following registration June 17.

## Crag Sales, Development Headquarters at New Site

NEW YORK—Crag agricultural chemicals has moved its sales headquarters from New York City to new suburban offices at 180 So. Broadway, White Plains, N.Y., it is announced by Union Carbide Chemicals Co., Division of Union Carbide Corp. Personnel occupied their new offices on May 20.

The technical development group, part of the Crag agricultural chemicals department, is included in the move. No other Union Carbide Chemicals offices are involved.

## CORN BORER LOSS

BLACKSBURG, VA.—Corn borer destruction in Virginia last year totaled \$719,000, based on the loss of about 550,000 bu. of corn grown for grain, according to Virginia Polytechnic Institute entomologists.

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## INSECT AND PLANT DISEASE NOTES

### Periodical Cicadas Make Appearance in Indiana

VINCENNES, IND.—Late infections of primary scab, severe in nature, began showing in several orchards around the middle of May. Conditions have been ideal during wet period for secondary infection in orchards where primary is present.

Codling moth activity has slowed down to cool, wet weather. Emergence of adult periodical cicadas of brood XIV was noted May 12. Orchardists were urged to protect young trees by using either tobacco or cheesecloth coverings.

Plum curculio have been more abundant in both peaches and apples this year than during the past few

years. Stink bugs are also active in peach orchards. Twenty-six of these were bumped from 5 trees in an abandoned orchard on May 20.—D. W. Hamilton.

### Alfalfa Weevil Features Maryland Insect News

COLLEGE PARK, MD.—Alfalfa weevil infestation increased this year in Washington and Allegany counties, that is, the spread continued westward. Cocoons are now appearing in that area. Pea aphids were abundant in the northern and western counties causing some damage, and spittlebugs are now conspicuous on both alfalfa and clover. Pea aphids are increasing on second growth alfalfa on the Lower Shore, 50 per sweep. Tarnished plant bugs are reported from Baltimore County.

Armyworms are one-half to three-fourths grown in Worcester County and may be found generally in barley and other small-grain fields. The worms are chewing the edges of the leaves and will drop when disturbed. There are a few heavy infestations and spraying by airplane has started.

Colorado potato beetles are laying eggs on tomatoes in Wicomico and Worcester counties. At Hancock codling moths began emerging May 11 and egg laying time has come. Some leaf roller larvae as well as European red mites and rosy aphids are still being found.—Theo. L. Bissell and Wallace C. Harding.

### Corn Earworm Attacking Young Corn in N. Carolina

RALEIGH, N.C. (Via Western Union)—Large populations of corn earworm are attacking young sweet corn in coastal areas of North Carolina, according to a telegram from H. E. Scott, entomologist, on May 23. He also reported that armyworms are present in the Piedmont area.

Tobacco flea beetles were reported on May 23 as doing moderate damage to flue-cured tobacco, and boll weevils were found in Scotland County on May 14. Some fields have been found with more than three weevils per hundred plants.

### Elm Leaf Beetles Appear in Eastern Arkansas

FAYETTEVILLE, ARK. (Via Western Union)—Elm leaf beetles were infesting elm trees in eastern Arkansas on May 22, according to a wire from Gordon Barnes, extension entomologist at the University of Arkansas here. He said that the larvae were from one-half to two-thirds grown and that many trees were suffering heavy loss of foliage.

In other parts of the state, cutworms were attacking cotton following legume cover and in the parts of fields that lay near legume crops.

### Cotton Damaged by Aphids in New Mexico

STATE COLLEGE, N.M.—Seed corn maggots are causing damage to cotton in Dona Ana County. Seed germination and stands have been reduced considerably in scattered areas.

Cowpea aphids are light to medium and general in cotton fields in Dona Ana, Luna, Hidalgo and Socorro counties.

Spotted alfalfa aphids continue to build up across the southern quarter of the state. Spring seeded alfalfa fields have medium to heavy infestations and small plants are being killed in hot spots and on borders in many fields. Growers who have two or more wingless aphids per plant in spring planted fields should use control measures.

Lygus bugs are heavy in uncut alfalfa in Dona Ana County. Fields checked averaged 80 per 100 sweeps.

Green peach aphids are heavy on peaches in Rio Arriba County.

Grasshoppers continue to hatch on range lands in Lea, Roosevelt, Curry, Quay, Union, and Harding counties. Infestations range from 1 to 23 per square yard but hatch is not complete. Most of the 'hoppers are in the first and second instar.—John Durkin.

### Thrips Slow Cotton Growth in Southwest

PHOENIX, ARIZ.—Weather conditions have been unfavorable for cotton growth due to continued cool days and nights. Thrips continue to be a problem in many parts of the state. Much cotton has received severe injury by thrips and control measures with insecticides will not be as good as they would have if the cotton had been sprayed before the thrips started working. Many fields still will profit by controlling the thrips. Many growers have thought that one application of insecticide would give the desired results, however, with the cool weather and later egg hatching, three applications are almost a necessity.—J. N. Roney.

### NITRIC ACID

(Continued from page 1)

fuming acids, according to the report.

The increase in commercial production of nitric acid during the period 1950-56 has paralleled closely, although not completely, the expansion in capacity, according to the report. The proportion of commercial capacity represented by output declined from 88% in 1951 to 84% in 1956.

With new plants coming on stream during 1956 and 1957, the outlook during the next few years is for some further decline in the ratio of production to capacity. Production in government plants was only a small proportion of capacity during 1955 and 1956 (8 to 10%).

The relation of output to capacity in commercial plants for concentrated nitric acid in 1956, amounting to a little over 87%, was somewhat larger than that for the original unconcentrated acid.

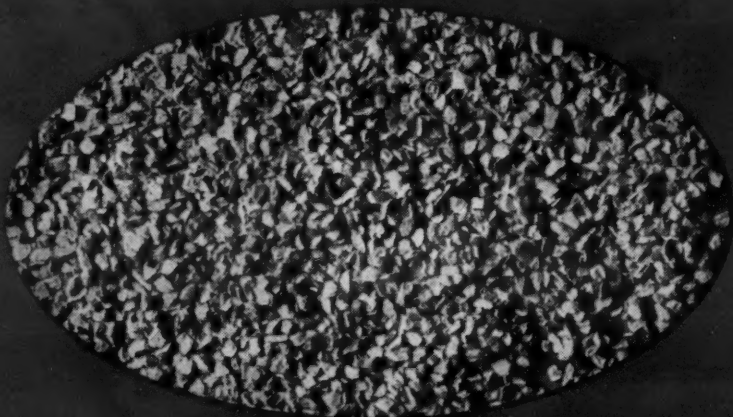
Reports of the producers concerning consumption of ammonia in the production of nitric acid indicate an average use of 0.30 ton NH<sub>3</sub> per ton of HNO<sub>3</sub>, which represents a processing loss of around 10% from the theoretically required amount.

Ammonia consumed in the manufacture of nitric acid totaled approximately 723,000 and 753,000 tons in 1955 and 1956, respectively, the 1955 consumption representing about 22% of the anhydrous ammonia output in that year compared with 26% in 1950.

It is estimated in the report that nitric acid use is distributed approximately 75% to fertilizers, 15% to industrial explosives and 10% to all other uses.

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## PESTICIDE SAFETY

(Continued from page 1)

of obtaining pesticidal chemicals which would act specifically against distinct pests and yet at the same time would have little if any effect on other insects which are generally known as predators. However, Dr. Knipling expressed the opinion that this goal had not yet been obtained, and to delay experimentation on new products would be to effect a virtual ban on such progress that is essential in the field of crop protection.

In the field of possible harmfulness to human consumers of agricultural products, Dr. Knipling commented that it is well understood in scientific circles that modern chemicals now used as pesticides are far superior in effect than the widely used compounds in vogue 20 or more years ago and that the new modern products are generally less hazardous to the consuming public.

Dr. Knipling expressed the opinion that when all the advantages and possible disadvantages were weighed he found on balance a decided conclusion in favor of the products of modern science over the admitted shortcomings of pesticides.

The Beltsville scientist expressed surprised interest that anyone would delay experimentation and practical use of new technical developments in the field of pesticidal chemicals. Dr. Knipling pointed out that at the present time to delay progress in individual products while seeking a common specific would be to ignore the practicalities of agricultural production. For instance, he cited the case of cotton where a dozen or more important insect pests attack and damage this crop. To defer use of present chemical materials because one or more of them might upset the balance of nature in the cotton belt, would overlook the very real problem of the cotton farmer. He must protect his crop against a dozen or more pests and cannot wait until chemical science has discovered a single specific which will remedy all pest problems and still at the same time not harm predators.

As to harmfulness of pesticidal chemicals to the human being from residues, Dr. Knipling remarked that he believed that the Miller Amendment was an assurance to the public of a guarantee against danger from use of such chemicals. He said he felt certain the administration of this act was a cautious approach. Residual tolerances were being granted only on the basis of adequate pre-use testing by the producers as to harmlessness to the consumers from any residues which might remain on the farm product.

Dr. Knipling asked that special emphasis be given to the fact that his general comments supporting such scientific progress as has already been made in the field of economic poisons did not mean for one instant that the Beltsville scientists were now content to sit on their hands.

On the contrary, he declared, "we are gearing our operations here at Beltsville to explore every potential to attain the ideal goals of producing the yet-to-be-attained specific and at the same time exclude the predator insects from extermination."

He said that the future field of experimentation at Beltsville not only included the agricultural chemical field but also that of biologicals, resistant strains of plants and every other technique now known. He wished to make it plain that the scientific horizon of Beltsville was not confined to any narrow cell or pattern of the past even though he personally believes that excellent progress has been attained.

On the part of Food and Drug

Administration George Larrick, commissioner, told Croplife that the "whole purpose of the Miller Amendment was to make available modern scientific progress to the farm community and at the same time insure to the consumer safety against harm from residues which might remain."

Mr. Larrick went further to state that the administration of the Miller Amendment was being conducted on a decidedly cautious policy basis and that the residual tolerances which have been granted for new chemicals are well below the technical use levels which scientific study has indicated as safe, so that the consumer has double insurance of harmlessness.

Speaking for the apple industry experience with the use of chemical products in protecting the apple crop both for the producer and also the

consumer, Truman Nold, executive secretary of the National Apple Institute, remarked that it was a matter of surprise to him if anyone who understood the agricultural economy and the consuming public would, at this late date, raise the issue of the use of the new chemical pesticides.

He was in thorough agreement with Dr. Knipling that modern chemicals today are far safer and more efficient than the compounds of the old days.

"That anyone would raise this issue now indicates a grave oversight of the extremely beneficial results that have been provided the agricultural producers through the intense competition of the chemical industry in producing effective products," Mr. Nold said.

The Nold comment is particularly significant since the apple and other fruit crop farmers represent one of the oldest farm uses of protective chemicals.

The misconceptions about modern

pesticides should hardly require attention at this time, but since they have again erupted it seems essential to set the record straight. The statements above by individuals whose unbiased judgments cannot be challenged may be helpful at this time to lay away this worn-out old ghost of fear and alarm.

Western Plant Board  
To Meet June 11-15

DENVER—The annual conference of the Western Plant Board will be held in Denver, Colo., June 11-15. The conference will draw representatives from the 11 western states, the territories of Hawaii and Alaska and the Republic of Mexico.

Discussions will center on national and foreign pest and quarantine problems including the Mediterranean fruit fly, Khapra beetle, new Witchweed, and soybean nematode infestations in the east central part of the United States, Japanese beetle, gypsy moth and other problems.



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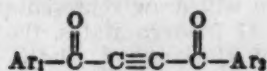
MONSANTO CHEMICAL COMPANY • Inorganic Chemicals Division, St. Louis 1, Mo.



## Industry Patents and Trademarks

2,787,573

**Pesticidal Compositions and Their Use.** Patent issued April 2, 1957, to Jack S. Newcomer, Grand Island, N.Y., assignor to the Pennsylvania Salt Mfg. Co., Philadelphia, Pa. A composition prepared for use in combating microorganisms comprising a surface active agent and a compound having the formula



wherein each of  $\text{Ar}_1$  and  $\text{Ar}_2$  represent an aryl radical selected from the group consisting of phenyl, biphenyl, terphenyl and naphthyl radicals, said aryl radicals having from 0 to 3 sub-

stituents selected from the group consisting of halogen and alkyl radicals having from 1 to 5 carbon atoms, said composition forming an emulsion with water upon agitation therewith.

2,787,645

**Separation of Gamma Benzene Hexachloride.** Patent issued April 2, 1957, to Leo Danzker, Kenmore, and Judson A. Wood, Niagara Falls, N.Y., assignors to Olin Mathieson Chemical Corp. A process for separating the gamma isomer of benzene hexachloride from crude benzene hexachloride, which comprises contacting molten crude benzene hexachloride, as obtained by the chlorination of benzene, and methanol in an amount of about 40 to 60 percent of the total amount of methanol required, agitating and cooling the resulting mixture to ap-

proximately room temperature, contacting the cooled mixture with the balance of the total amount of methanol and agitating the resulting mixture, separating and concentrating a solution of gamma benzene hexachloride, cooling the concentrated solution to not more than about room temperature and separating substantially pure crystallized gamma benzene hexachloride, the total amount of methanol required being about 70 to 95 percent by weight of the molten crude benzene hexachloride.

2,788,374

**Process For Preparing Dichlorodiphenyldichloroethane.** Patent issued April 9, 1957, to Robert H. Stair, Bellevue, Del., assignor to Allied Chemical Dye Corp., New York. In a process for preparing dichlorodiphenyldichloroethane by the condensation of monochlorobenzene and dichloroacetaldehyde, the step which comprises reacting, in the presence of a condensing agent, a mixture of dichloroacetaldehyde and trichloro-

acetaldehyde containing at least about 70% of dichloroacetaldehyde and in excess of about 8% but not more than about 25% of trichloroacetaldehyde, with quantity of monochlorobenzene sufficient to provide in a form available to react with said mixture, not substantially in excess of one mole equivalent of monochlorobenzene per mole of dichloroacetaldehyde in the mixture.

2,789,044

**Method of Destroying Vegetation.** Patent issued April 16, 1957, to Walter E. Steinmetz, Oak Park, Ill., assignor to National Aluminate Corp., Chicago. The method of destroying vegetation which comprises applying thereto a lethal concentration of herbicidal composition containing the essential active ingredient compound from the group consisting of halogenated pentadienoic acid salts, amides and esters thereof containing not more than 6 carbon atoms connected together sequentially.

2,789,045

**Superphosphate and Process for the Manufacture of the Same.** Patent issued April 16, 1957, to George G. Stier, West Orange, and George D. Conover, Passaic, N.J., assignors to Nopco Chemical Co., Harrison, N.J. A process which comprises reacting phosphate rock with sulfuric acid, said acid having dissolved therein a condensation product produced by reacting ethylene oxide with amino amide having a replaceable amino hydrogen atom.

### Industry Trade Marks

The following trade marks were published in the Official Gazette of the U.S. Patent Office in compliance with section 12 (a) of the Trademark Act of 1946. Notice of opposition under section 13 may be filed within 30 days of publication in the Gazette. (See Rules 2 to 20.5.) As provided by Section 31 of the Act a fee of \$25 must accompany each notice of opposition.

**Thridol**, in capital letters, for herbicides. Filed July 19, 1956, by Monsanto Chemical Co., St. Louis, Mo. First use July 12, 1956.

**Vegadex**, in capital letters, for herbicides. Filed July 19, 1956, by Monsanto Chemical Co., St. Louis, Mo. First use July 12, 1956.

**Sum-R-Gard**, in capital letters, for combined crabgrass, weed killer, and fertilizer. Filed Aug. 2, 1956, by Builders International Corp., Greenwich, Conn., now known as Aluminum & Chemical Corp. First use June 1, 1956.

**Oroco**, in capital letters, for organic fertilizer. Filed July 20, 1956, by Organic Corporation of America, Pittsburgh, Pa. First use on or about July 3, 1956.

**Naco**, in circle with atomic "mus room" as background, for insecticidal dust for use in agriculture. Filed March 9, 1956, by W. R. Grace & Co., New York. First use 1950.

**Tip Top**, in hand-drawn letter for packaged fertilizer. Filed July 24, 1956, by the Pennsylvania Salt Mfg. Co., Philadelphia. First use 1890.

**Naco**, in capital letters on yellow and red rectangular square, for insecticidal dusts for use in agriculture. Filed March 9, 1956, by W. R. Grace & Co., New York. First use 1950.

**Dixie Maid**, in heavy caps and lower case letters, for fertilizer. Filed Oct. 17, 1956, by Southern Nitrogen Co., Inc., Savannah, Ga. First use Sept. 4, 1956.

### MOSQUITO CONTROL

**FRANKFORT, KY.**—More than 35,000 acres in western Kentucky counties of Hopkins, Marshall, Graves, Fulton, Muhlenberg and Webster will be sprayed for mosquito control this summer and fall.



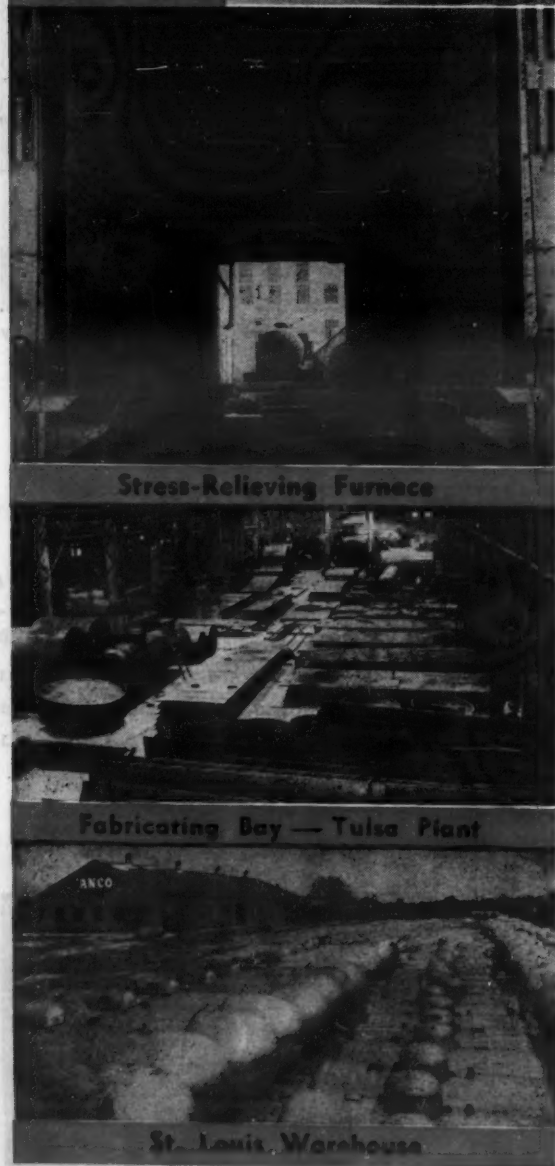
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## Illinois Wheat Income \$38 Million Below Possible Return

URBANA, ILL.—Illinois farmers would have over \$38 million more income from their wheat crop if they used the best soil treatments they now know how to use.

A. L. Lang, University of Illinois agronomist, bases this estimate on 1956 yield figures from 806 wheat plots on the 23 soil experiment fields in the state.

Mr. Lang points out that wheat yields on all untreated soil plots averaged 14 bu. an acre. On the plots where the best soil treatments were applied, yields averaged 49 bu. an acre. Average wheat yield for all Illinois farms last year was 37 bu. an acre.

Thus farmers averaged 23 more bushels of wheat an acre by using some soil treatments than they might have had if they had used no treatment at all. But if they had followed the best recommended balanced fertility program, Mr. Lang says they would have been able to average another 12 bu. an acre.

If this extra wheat yield had been obtained on all 1.6 million acres harvested in Illinois in 1956, it would have added more than 19 million bushels to the crop. At \$2 bu., farmers would have had more than \$38 million more income from their wheat.

## Atlas Powder Sales Up in First Quarter

WILMINGTON — Atlas Powder Co.'s sales and operating revenues from explosives, chemicals and other sources in the first quarter of 1957 were \$16,816,355, a 9.1% increase over the \$15,419,348 reported for the first three months of 1956, Ralph K. Gottshall, president, said at the annual meeting.

Net earnings in the initial 1957 quarter were \$928,241, or \$1.23 a common share. This was 3.3% below the \$959,853, or \$1.28 a common share, earned in the first quarter of 1956.

Mr. Gottshall said that operations of both the explosives and chemicals divisions are expected to continue at high levels for the rest of 1957, and that earnings for the year "should be close to the record figure reported for 1956."

## North Central Control Officials to Meet

SIOUX CITY, IOWA—Members of the fertilizer, pesticide and feed industries are invited to the annual meeting of the North Central States Association of Dairy, Food, Drug, Feed, Fertilizer and Pesticide Officials, to be held June 26 at the Sheraton Martin Hotel here.

I. Levin, Iowa state chemist and president of the association, said that the organization is comprised of officials in North Dakota, South Dakota, Nebraska, Minnesota and Iowa, and that officials from Wisconsin, Illinois, Missouri, Colorado and Utah also are being invited to the meeting.

## Alabama Meetings

AUBURN, ALA.—The Alabama Agricultural Experiment Station and the Alabama Soil Fertility Society are cooperating in sponsoring fertilizer meetings and experiment station tours at Auburn and Thorsby, Ala. July 30-31.

## BUYS ELEVATOR

VERMILLION, KANSAS—S. M. Jones, grain elevator owner and operator in this area, has purchased the Garnett Elevator at Garnett, Kansas. He also owns an elevator at Lillis, besides his grain holdings here. Harold Hope operates the Vermillion elevator, and Ed Gross is manager at Lillis. Both elevators are named after the Jones Grain Co.

## Diamond Establishes Career Training Plan

CLEVELAND—An intensive, 18-month "engineering experience—technical training" program designed to broaden the advancement opportunities of newly employed chemical engineering graduates within its nationwide organization has been launched by Diamond Alkali Co., Cleveland.

Thornton F. Holder, director of research, announced the new career-preparation program for both present and prospective young graduate chemical engineers employed at the Diamond research center at Painesville, Ohio.

He also announced the appointment of R. L. Annis as program supervisor. Associate director of research since August, 1955, he will assume this new responsibility of supervising and coordinating the program in addition to his present duties.

Research and development groups located at the Diamond research cen-

ter at Painesville associated with the exploratory research department or with one of the company's seven operating divisions are participating initially in the program, Mr. Annis indicated.

Under the plan, each employee assigned to the program will work for 18 months in three different participating groups, or six months in each. After 18 months, during which work evaluations will be made periodically by both the employee and the program supervisor, the junior engineer has two courses open to him. Either he is assigned permanently to a participating group with which he was previously associated, or he may continue in the program with assignment to a fourth group.

## LAWRENCE E. SHIPP DIES

CAMPBELLSVILLE, KY.—Lawrence E. Shipp, seed, feed and fertilizer merchant here before his retirement three years ago, died recently at the age of 64.

## Fall Meeting of WACA Scheduled

SAN JOSE, CAL.—The fall meeting of Western Agricultural Chemicals Assn. will be held in the Villa Hotel, San Mateo, Cal., Oct. 7-8, 1957, C. O. Barnard, executive secretary of the association, has announced.

Dr. M. W. Allen, department of nematology, University of California at Berkeley, will discuss nematodes and the application of nematocides.

William A. Harvey, weed control specialist, extension service, University of California at Davis, will explore some economic aspects of the control of unwanted vegetation.

Allen B. Lemmon, chief, Bureau of Plant Industry, California Department of Agriculture, also will speak.

All speakers will appear after luncheon Oct. 8. Prior sessions will be devoted to association business. A social hour will start at 11:45 a.m. Oct. 8.

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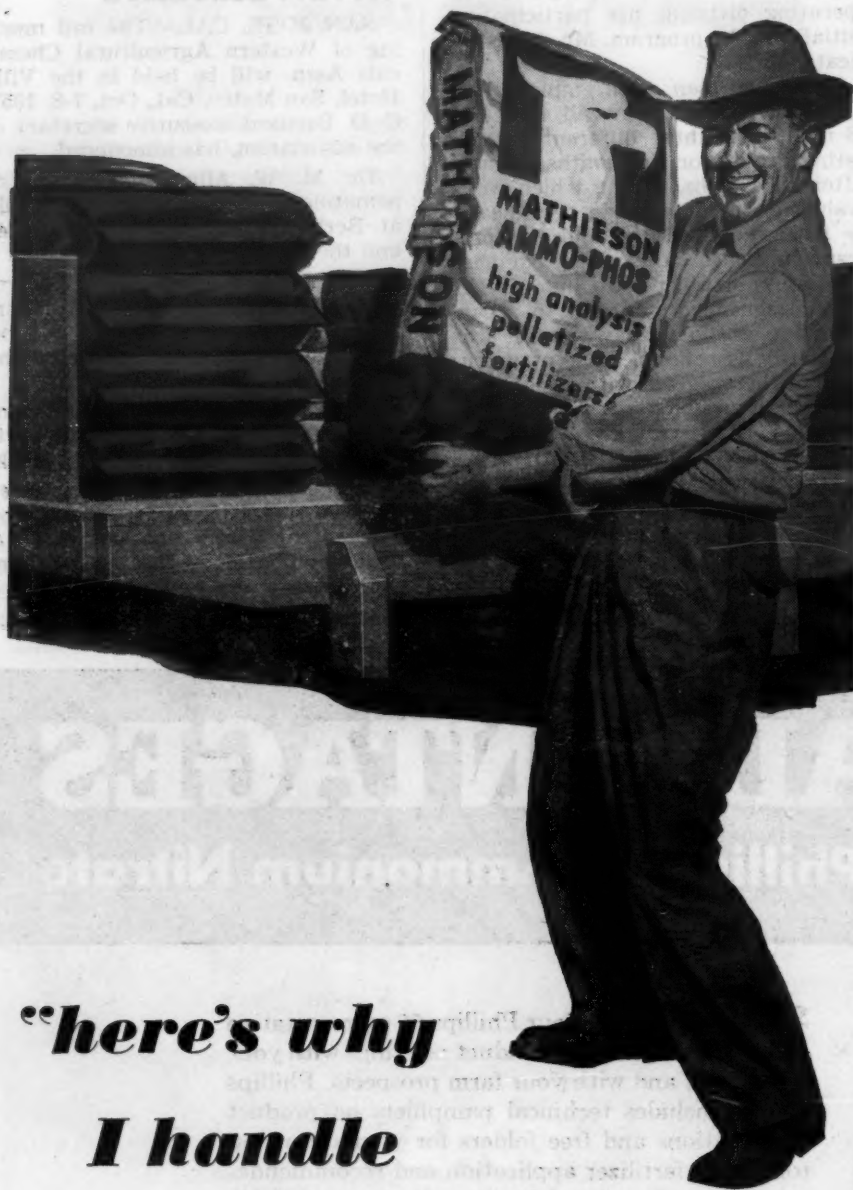
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HOUSTON, TEX.—1020 E. Holcombe Blvd.  
INDIANAPOLIS, IND.—1112 N. Pennsylvania St.  
KANSAS CITY, MO.—500 West 39th St.  
MINNEAPOLIS, MINN.—212 Sixth St. South  
NEW YORK, N. Y.—80 Broadway  
OMAHA, NEB.—6th Floor, WOW Building  
PASADENA, CALIF.—330 Security Bldg.

RALEIGH, N. C.—804 St. Mary's St.  
SALT LAKE CITY, UTAH—68 South Main  
SPOKANE, WASH.—521 E. Sprague  
ST. LOUIS, MO.—4251 Lindell Blvd.  
TAMPA, FLA.—3737 Neptune St.  
TULSA, OKLA.—1708 Ullico Square  
WICHITA, KAN.—501 KFH Building





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And to make my Mathieson dealership more profitable, Mathieson helps me make sales by backing their complete line of agricultural products with advertising in magazines, on the air, and at point-of-sale. I certainly value my Mathieson dealership."

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OLIN MATHIESON CHEMICAL CORPORATION

PLANT FOOD DIVISION

LITTLE ROCK, ARKANSAS

## CAROLINAS-VIRGINIA MEETING

(Continued from page 1)

agricultural fields, needs creative selling to achieve success, Col. Bottom declared. Salesmen are not "born," but rather, they are developed through their own ingenuity or creativeness in approach to prospective customers. Good salesmen should create an atmosphere which will cause a prospect to buy, he said, and this can be attained only through the application of Christian principles to selling.

Accomplishments of the CVPFA since its organization three years ago were outlined by Mr. Maxwell in the president's address. Association representatives at the North Carolina state legislature were instrumental in deferring a proposed 3% tax on agricultural chemical sales, he reported. Entomology projects in 4-H work have been encouraged by presenting a CVPFA award to the youth with the top entomology project in his state. The association also has a representative on the North Carolina Cotton Promotion Committee, he said.

The president cited a number of problems regarding sales and distribution of agricultural chemicals. These included (1) late, spur-of-the-moment purchasing of insecticides and inadequate distribution of applying equipment in the three-state area; (2) heavy concentration and overlapping of sales areas by national and local formulators in the area; (3) development of new markets to counteract the reduction of cotton and tobacco acreage brought about by the Soil Bank program; (4) allowing too many formulator assets to be tied up in inventory and accounts receivable; (5) consignment selling; (6) guaranteed sales policies; (7) quantity discounts; (8) mis-

classification of consumers, dealers and distributors in relation to pricing methods and (9) abnormally high sales costs.

Discussion of these problems was handled by a six-man panel which included John Kennedy, Stauffer Chemical Co., New York; Ted Riedeburg, Theo. Riedeburg and Associates, New York; William Burnside, Hercules Powder Co., Raleigh; John Plowden, Gelgy Chemical Corp., Ardsley, N.Y.; Howerton Gowen, Howerton Gowen Co., Roanoke Rapids, N.C., and W. R. Peele, W. R. Peele Co., Inc., Raleigh.

Guest after-dinner speaker at the association banquet May 14 was Maury Hubbard, executive secretary of the Virginia Farm Bureau Federation, Richmond.

Two industrial films were shown at the meeting. One was "Man Sows," presented by the Chemagro Corp. and the other was on Malathion by the American Cyanamid Co.

The remainder of the program included meetings of the directors and committees. In addition to Mr. Maxwell as president, officers include George Simches, Planters Chemical Co., Norfolk, Va., vice president; John M. Daly, Daly-Herring Co., Kinston, N.C., vice president, and Mr. Peele, secretary-treasurer. Directors include the officers of the CVPFA and Frank Reid, Quality Chemical Co., Wilson, N.C.; John Thompson, Graham Chemical Co., Greensboro, S.C.; Robert Hazlehurst, H & M Chemical Co., Sumter, S.C., and W. P. Crown, Carolina Chemicals, West Columbia, S.C. J. C. Whitehurst, Coastal Chemical Co., Greenville, N.C., was appointed to fill the unexpired term of A. F. Leavitt on the directorate.



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TPA 193





**EASY TO SHOP**—Making it easy to shop was the purpose which the Boulay Bros. Co. management had in mind when it planned its 20 by 25 ft. farm and garden chemical supply display store. Here an employee demonstrates the ease with which a customer can browse around, pick up merchandise and study it to suit his convenience. Step-up wall shelving on which are prominent price cards facilitate semi-self-service shopping.

## Open Displays Invite Buyers Into Wisconsin Retail Store

By Al P. Nelson  
Croplife Special Writer

Open display of many fertilizer and farm chemical items helps the Boulay Bros. Co., Fond du Lac, Wis., sell more of these items to farmers and local gardeners. The firm has an area of about 20 by 25 ft. in its large showroom which is devoted to a showing of fertilizer and farm chemicals in season, and the display invites a steady stream of customers.

For example, as the farmer comes to the mill to have his grain ground and mixed with concentrate, he usually finds time to wander through the sales room where he spots the open display of farm chemicals, sprayers, etc. Often he sees something he wants and buys it.

The Boulay management provides semi-self service in its store. The items displayed on the shelves are plainly marked on the shelf dividers. Thus when the customer sees something he wants he can pick it up and bring it to a central counter. Of

course, if he needs help in selecting his item, he can get it from the two clerks who are usually in the retail display room.

But this self service feature is especially welcome to customers on busy days, for it means they can select some of the items they want and thus cut down waiting time in the store.

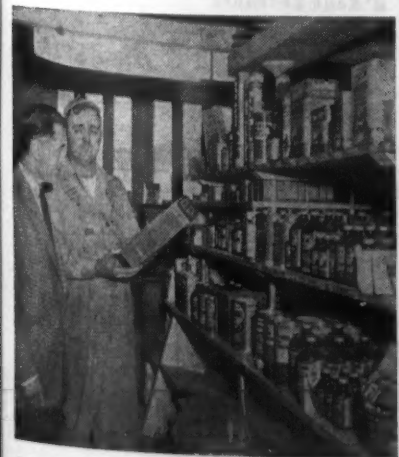
The firm sells fertilizer to farmers by the bag or ton and to gardeners by the bag. Most customers pick up their own fertilizer. If the farmer wants fertilizer spread on his land, the manufacturer from which the Boulay firm buys—not more than 90 miles distant—brings a truck load and spreads directly on the customer's land. This practice cuts down costs and yet gives the farmer the benefit of the bulk price.

On several of its wall sections in its retail store, the Boulay firm uses step-up shelving. Items displayed at the lower and wider shelving at the bottom can be seen by the browsing customer just as clearly as the merchandise on the upper, narrower shelves. Center aisle display counters, however, do not have step-up shelving features.

Boulay Bros. Co. also sells building supplies, and has a feed processing plant. A total of 20 employees work at the farm supply firm. David Boulay is president and Ken Boulay is vice president.

### CONTROL DEMONSTRATIONS

URBANA, ILL.—Earl C. Spurrier, University of Illinois extension agronomist, reports that farmers in 58 counties would carry on 165 different weed control demonstration tests in Illinois this year. In 1956, farmers in 43 counties cooperated and results were collected at 77 locations. About 2,350 farmers attended field meetings on these test plots.



**GARDENER SHOPS**—A gardener looking for advice and farm chemicals is shown in the display room of the Boulay Bros. Co., Fond du Lac, Wis. The company has an area 20 by 25 ft. devoted to farm and garden chemicals and the open displays permit semi-self-service.

### SHOP TALK

## OVER THE COUNTER

By Emmet J. Hoffman  
Croplife Marketing Editor

Hiring and keeping qualified help on the payroll is as much a problem for the small retailer as it is for the large manufacturer who employs hundreds of persons. Labor takes a big bite out of a company's income and therefore deserves careful attention from management, whether there are two or 200 employees.

In this connection, an interesting study calls attention to the importance of desirable character traits in an employee. The worker's character and habits are of much greater importance in an employee's stability than are the lack of specific skills. In other words, an employee can be taught how to keep books but if laziness and lack of loyalty are a part of his character, the employer's hopes of correcting the situation are not nearly as good.

In the study mentioned previously, 10% of the reasons for discharges were for lack of specific skills, such as inability to spell, write legibly, type, do bookkeeping properly, run office machines and use English properly.

On the other hand, character traits were responsible for 90% of the discharges. Among the undesirable character traits, in the order of importance indicated by percentages of discharges, were the following:

Carelessness 14%, non-cooperation 11%, laziness 10%, absence for causes other than illness 9%, dishonesty 8%, attention to outside things 8%, lack of initiative 8%, lack of ambition 7%, tardiness 7%, lack of loyalty 4%, lack of courtesy 2%, and improper clothing, self-satisfaction, irresponsibility and unadaptability approximately 1% each or less.

### Lack of Skills Slows Promotion

The same survey indicated that lack of specific skills, while not generally the cause of discharge, is more often the reason why the employee is not promoted. Not being able to fill the job accounted for 24% of the non-promotions. Interestingly enough, of the 24%, about one-fifth were not promoted because of their lack of skill in speaking and writing English.

In 76% of the cases, character traits were responsible for not promoting employees.

Here are the character traits, ranked in order of their importance, which were responsible for non-promotion: Lack of initiative 11%, lack of ambition 10%, carelessness 8%, non-cooperation 7%, laziness 6%, attention to outside things 6%, tardiness 5%, lack of loyalty 5%, self-satisfaction 4%, absence for causes other than illness 4%, lack of courtesy 3%, improper clothing 3%, absence due to illness 2%, and unadaptability, dishonesty and irresponsibility 1% or less.

It would appear that the dealer, in interviewing prospective employees, can often avoid problems later by looking for unsuitable character traits and place less emphasis on lack of skills which may be taught the worker after he begins his job.

### COTTON DISEASE

STILLWATER, OKLA.—Diseases reduced Oklahoma's cotton yields 11.7% in 1956, according to an Oklahoma Agricultural Experiment Station survey. Bacterial blight was the most serious disease.



By RAYMOND ROSSON  
County Agent, Washington County, Tenn.

One dealer told me, "When I sell a farmer his fertilizer, I always ask him, 'Is your soil sweet or do you need lime?'" This dealer says, "I've found out long ago, the fertilizer I sell a farmer will make him more money every time if his soil is sweet."

This dealer is right as rain. We started liming Washington County back in 1928 and we've used many thousand tons of agricultural limestone, but when I study the soil samples as they come back, I find many farmers and many fields need lime.

I am concerned too, when a farmer gets his soil analysis back and it says that it is high in—we'll say potash; I'm afraid he'll be satisfied with the test and think his soil will be fine for years as far as potash goes. If it does test high, I always suggest that he use some potash under every crop that requires very much potash (as alfalfa) and in doing so, he maintains his stand as well as producing three to four good cuttings of hay for years and years.

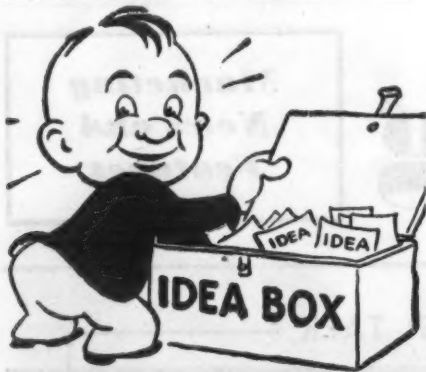
We have several farmers in the county, who take a soil test of every field every year. It pays.

Many of our farmers apply fertilizer to their alfalfa fields just after the first cutting—and we are wondering if we will see them apply plant food to their alfalfa after each of the three first cuttings.

And while we are talking about alfalfa, we suggest to farmers that they sow some alfalfa with orchard grass and ladino clover for a better pasture mixture.

Our dairymen say, "Cows like orchard grass in a pasture mixture better than they do fescue in the mixture." Fescue seems to suit the beef cattle men better than the dairymen.





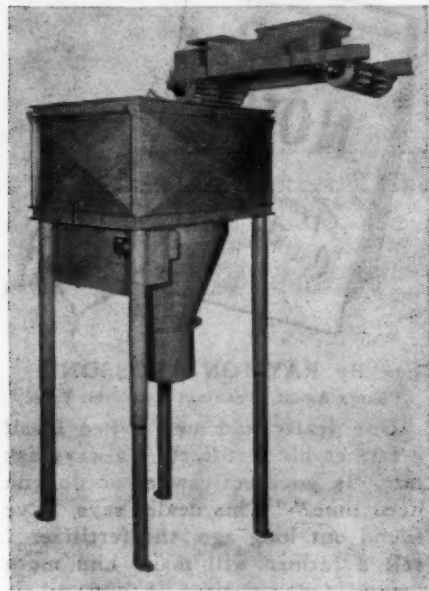
## What's New...

In Products, Services, Literature

You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address. (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

### No. 5704—Bag Filling Machine

The Kraft Bag Corp., sales agent for the Kraftpacker automatic open mouth bag filling machine for free-flowing material, announces a new brochure on the newest Kraftpacker model that accommodates weights from 25 to 200 lb. Among the dozen or more new features and refinements claimed are (1) heavier gauge steel construction, (2) individually adjustable tubular legs, (3) reinforced contact points (4) removable and adjustable filling spout, (5) removable endless feeder conveyor belt, (6) enclosed solenoids and (7) hinged bagging cone. The company announcement states: "There are also many improvements in the operation of the scales and dustproof solenoids to ensure uninterrupted service. The versatile Kraftpacker requires a minimum head of material to maintain accuracy and, in operation, preweighs material to within 4 oz. plus or minus even on speeds up to 24 charges a minute. A special flow-gate quadrant on the conveyor may be lowered or raised to reduce or increase production rate. Analyses changeovers may be made with a minimum of time and effort. Most users report handling on an average of 18 bags per minute for a full day's operation." Secure complete details by checking No. 5704 on the coupon and mailing it.



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### No. 6585—Emulsifier

A development in facilitating the field mixing of emulsifiable pesticide concentrates with liquid fertilizers has been announced by the Emulsol Chemical Corp. The new emulsifier, Emcol H-C is an extension of Emcols

H-A and H-B which have been in production for some time, for such emulsifiable concentrates as aldrin, BHC, chlordane, dieldrin, Endrin, Heptachlor and Nemagon. The material is especially recommended in formulating emulsifiable concentrates to be used in high potash fertilizer solutions. Full details are available in technical bulletin No. 47 titled, "Formulator's Manual for Liquid Fertilizer-Liquid Pesticide Mixtures." Check No. 6585 on the coupon and mail it.

### No. 6583—Rubber Lined Tanks

A booklet entitled, "Corrosion Protection for Agriculture and Industry," has been published by the Gates Rubber Company Sales Division, Inc. The booklet provides information about the flexibility and uses of the company's rubber lined tanks, including the storage of nitrogen fertilizer. Check No. 6583 on the coupon and mail it to secure the booklet.

### No. 6582—Insect Resistance

The American Cyanamid Co., phosphates and nitrogen division, has available new literature discussing insect resistance to insecticides. Part of the literature is a folder entitled, "Malathion Insecticides, Grower's Guide." In the folder is a detailed spray and dust chart for Malathion use on fruit trees, citrus trees, vegetables, field crops, ornamentals and greenhouse plants. The product's use in fighting household insects is also outlined. Check No. 6582 on the coupon, clip and mail it to Croplife to secure the literature.

### No. 5693—Separator Catalog

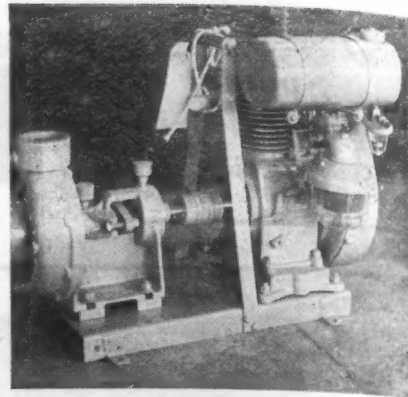
A new 22-page catalog describing vibrating screen separators, called by the trade name, Sweco, has been issued by the Southwestern Engineering Co. The equipment is used for the screening of many types of dry materials, including some used in grain and feed processing, and the chemical industry. The catalog is well-illustrated and is in two colors. Operational details are provided. Check No. 5693 on the coupon to secure the catalog.

### Also Available

The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted to help keep retail dealers on the regional circulation plan informed of new industry products, literature and services.

### No. 6569—Pump Units

The Nutra-Flo Liquid Fertilizer Equipment Co. is producing two pump units, one with a 2 h.p. motor capable of handling 50 gal. per minute and



having a 50-lb. pressure, the other with a 1½-in. pump and a 3½ h.p. motor capable of pumping 150 gal. per minute. Both can be used for pumping non-corrosive liquid fertilizer, water and other normal uses for pumps. They are specifically designed for pumping liquids heavier than water. The shaft on each is stainless steel and the housings are of iron. In the picture here a gasoline engine is direct-mounted. Electric motors may also be used. Secure complete details by checking No. 6569 on the coupon and mailing it to Croplife.

### No. 6575—Portable Ribbon Mixers

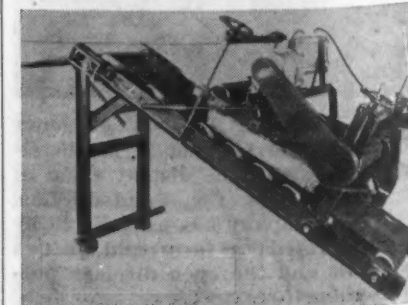
A new line of portable heavy duty horizontal ribbon mixers is in production from 0.34 cu. ft. working capacity to 20 cu. ft. working capacity, announces the Young Machinery Co. The mixers are available in carbon steel, stainless steel, and Monel metal with or without heating or cooling jackets and move freely on heavy duty industrial casters. They are furnished with single or double ribbon or ribbon and paddle agitators. The mixers have dust-tight, gasketed, hinged covers with quick opening clamps, marine-type compression packing glands and anti-friction outboard bearings with sealed roller bearing pillow blocks—one fixed and one floating. Discharge is made either from the center or the end by a slide gate or a worm gear operated plug gate. The portable mixers are furnished as complete units with motors and drives. They are recommended for mixing dry, free flowing powders or granular materials. Secure complete details by checking No. 6575 on the coupon and mailing it to Croplife.

### No. 6571—Insect Spray Chart

The Hanson Equipment Co. has available, without charge, a file folder containing an identification insect spray chart. It contains up-to-date information on how to spray and what chemicals can be used to protect fields from crop-damaging insects, according to company officials. Common insects are listed along with illustrative color drawings. To secure the file folder check No. 6571 on the coupon and mail it to Croplife.

### No. 5669—Bag Flattener

A new heavy-duty bag flattener using power-driven "condersite" covered rolls and rough top belting has been announced by the Flexoveyor Manufacturing Co. The standard unit is 24 in. wide and has 6 ft., 8 in. centers and is powered by a 1½ h.p. gear motor. The unit can be furnished horizontal for floor mounting, or with casters for portability, or can be inclined up to 35°. Hand wheel adjustment for both the receiving and discharge ends of the hugger conveyor



Send me information on the items marked:

- |  |   |
|--|---|
| <input type="checkbox"/> No. 5669—Bag Flattener      | <input type="checkbox"/> No. 6573—Booklet               |
| <input type="checkbox"/> No. 5688—Contract Blending  | <input type="checkbox"/> No. 6574—Power Sprayer         |
| <input type="checkbox"/> No. 5693—Catalog            | <input type="checkbox"/> No. 6575—Mixers                |
| <input type="checkbox"/> No. 5702—Seed Disinfectant  | <input type="checkbox"/> No. 6576—Insecticides Bulletin |
| <input type="checkbox"/> No. 5704—Bag Machine        | <input type="checkbox"/> No. 6577—Fertilizer Equipment  |
| <input type="checkbox"/> No. 6568—Insect Control     | <input type="checkbox"/> No. 6578—Safety Bulletin       |
| <input type="checkbox"/> No. 6569—Pump Units         | <input type="checkbox"/> No. 6582—Resistance Folder     |
| <input type="checkbox"/> No. 6570—Repellent Base     | <input type="checkbox"/> No. 6583—Tanks                 |
| <input type="checkbox"/> No. 6571—Insect Spray Chart | <input type="checkbox"/> No. 6585—Emulsifier            |
| <input type="checkbox"/> No. 6572—Mineral Products   |   |

NAME .....

COMPANY .....

ADDRESS .....

CLIP OUT—FOLD OVER ON THIS LINE—FASTEN (STAPLE, TAPE, GLUE)—MAIL

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PERMIT No. 2  
(Sec. 349,  
P. L. & R.)  
MINNEAPOLIS,  
MINN.

BUSINESS REPLY ENVELOPE

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POSTAGE WILL BE PAID BY—

Croplife

P. O. Box 67

Reader Service Dept.

Minneapolis 1, Minn.



provided. All bearings are anti-friction ball bearings, with rolls having sealed-for-life ball bearings, it is explained. The company claims that the flattener "has been proved by continuous operation under severe conditions" and that it "produces neat, well-formed bags that are easier to handle and conserves shipping and warehouse space." Secure complete details by checking No. 5669 on the coupon and mailing it.

### No. 6578—Safety Information Bulletin

A reproduction of the feature, "A Dozen Hints for Safe Use of Pesticidal Chemicals" which appeared in Croplife recently, is available to dealers. As illustrated here, it is printed on 8 1/2 x 11 stock suitable either for

Mr. Dealer... Post This on Your Bulletin Board

#### A DOZEN HINTS FOR SAFE USE OF PESTICIDAL CHEMICALS

1. READ LABEL... Always read the label before using sprays or dusts. Note warnings and cautions and time before opening the containers.
2. STORE SAFELY... Keep sprays and dusts out of the reach of children, pets and irresponsible persons. They should be stored outside of the home and away from food and feed.
3. DON'T SWITCH CONTAINERS... Always store sprays and dusts in original containers and keep them tightly closed. Never keep them in anything but the original containers.
4. NO SMOKING... Never smoke while spraying or dusting.
5. PROTECT YOURSELF... Avoid inhaling sprays or dusts. When directed on the label, wear protective clothing and masks.
6. DON'T SPILL TOXICANTS... Do not spill sprays or dusts on the skin or clothing. If they are spilled, remove contaminated clothing immediately and wash thoroughly.
7. WASH THOROUGHLY... Wash hands and face and change to clean clothing after spraying or dusting. Also wash clothing each day before reuse.
8. COVER FOOD CONTAINERS... Cover food and water containers when treating around livestock or pet areas. Do not contaminate fish ponds.
9. DON'T CONFUSE WITH HERBICIDES... Use separate equipment for applying herbicide-type herbicides in order to avoid accidental injury to susceptible plants.
10. DISPOSE OF EMPTIES... Always dispose of empty containers so that they pose no hazard to humans, animals or valuable plants.
11. REMEMBER RESIDUES... Observe label directions and cautions to keep humans and animals out of plants within the limits permitted by law.
12. CALL DOCTOR IF ILL... If symptoms of illness occur during or shortly after spraying or dusting, call a physician or get the patient to a hospital immediately.

Reprinted from Croplife, April 22, 1957

hanging on a bulletin board or as a mailing piece to be sent to farmers in the dealer's community. Single copies are free. A nominal charge is made for quantities. (Quantity prices will be furnished on request.) Check No. 6578 on the coupon and mail it to Croplife.

### No. 6572—Natural Mineral Products

The Minerals & Chemicals Corporation of America has published a technical information folder No. 1004 entitled, "Natural Mineral Products." The folder provides complete details of the company's range of products, including a carrier and diluent for formulating granular pesticides, fungicides, herbicides and soil fumigants and other products used as carriers, diluents, extenders and conditioners in farm chemicals. Secure the folder by checking No. 6572 on the coupon and mailing it to Croplife.

### No. 5702—Liquid Seed Disinfectant

Panogen, Inc., is distributing liquid seed disinfectant in small sizes for home treating. The liquid is available



in pint, quart and gallon bottles. A liquid dispenser is designed for use with the bottles. The dispenser attaches directly to the bottle and delivers the correct amount of disinfectant to the seed being treated, company officials say. Full details will be mailed without charge. Check No. 5702 on the coupon and mail it to this publication.

### No. 6577—Fertilizer Equipment Catalog

A new 24-page 2-color catalog showing its line of equipment for the fertilizer industry has been published by the Stedman Foundry & Machine Co., Inc. Included in the publication are front and rear view machinery illustrations, foundation plans and information concerning the company's granular fertilizer process, four lines of batch mixers, continuous ammoniators, all-steel mixing units, tailings mills—both hammer and double cage types—and vibrating screens—single and multiple deck units. New ma-

chines not shown in any other company literature are included in this catalog No. 515. For a copy check No. 6577 on the coupon and mail it to Croplife.

### No. 5688—Contract Blending

A brochure entitled, "Contract Blending to Meet Your Requirements," has been prepared by the Dearborn Chemical Co. The brochure states that the facilities of the firm's new, push-button control plant are available to manufacturers of compounded chemicals. Materials can be produced, packaged, labeled and shipped in accordance with desired requirements. The brochure lists these advantages: Automatic bulk chemical receiving and storage facilities; automatic weighing and blending equipment; volume chemical purchase prices; volume freight rates; low container costs; reduction of local inventory and delivery expense; low "per unit" finished product cost;

excellent shipping connections; and personalized service. Check No. 5688 on the coupon and mail it to this publication to receive the brochure.

### No. 6568—Municipal Insect Control

Literature pertinent to municipal insect control has been published by the Velsicol Chemical Corp., in a brochure called, "Here's What Chlor-dane Insecticides Can Do For Your City." The contents include technical bulletins dealing with a wide variety of insect pests, insect habits, insecticide dosages, and other aspects of successful municipal insect control. The subject is treated in considerable detail. The brochure is said to be useful both as a reference volume and a source of information and subject matter for those who plan and conduct meetings on community health problems. It also will serve as a guide in establishing standards for control methods and purchasing specifications.

(Continued on page 15)

**NOW** you can formulate  
**high concentrate wettable powders**  
**at low cost with**  
**MICRO-CEL**

#### SUBSTANTIAL FORMULATION SAVINGS

Micro-Cel®, a new line of synthetic calcium silicates, has extremely high absorptive properties. It is this remarkable capacity for absorption that makes it possible to prepare wettable powders with higher concentrations of dry, viscous or liquid poisons. Micro-Cel's absorption also means that more lower cost diluents can be used. Thus high strength formulation costs are now cut to a new low.

#### REMAINS FREE-FLOWING—MEETS STORAGE TESTS

With Micro-Cel, these high concentrates will remain in a free-flowing state even after prolonged storage. This is particularly important in producing poisons for the export market.

In addition, suspension values after storage of 1.5

to 2.0 I.C.A. have been achieved in 75% DDT wettable powders, based on Micro-Cel. This is more than adequate for storage conditions encountered in most tropical countries.

#### DEVELOPED BY JOHNS-MANVILLE RESEARCH

Micro-Cel is another development of Johns-Manville Research. Combining high absorption, large surface area, small particle size and excellent dry flowability, it offers a unique combination of properties for insecticide formulation and other process needs.

Sample quantities and carload shipments are now available. Write for further data and sample formulations for poisons of interest to you. Or ask a Celite engineer to help you adapt Micro-Cel to your particular requirements and specifications.



Johns-Manville, Box 14, New York 16, N.Y.

In Canada: Port Credit, Ontario

Please send ☐ further information; ☐ samples of Micro-Cel. I am interested in using Micro-Cel with the following poisons:

☐ Please have your local representative contact me.

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Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

**Johns-Manville**  
**MICRO-CEL**  
SYNTHETIC CALCIUM SILICATES  
A PRODUCT OF THE CELITE DIVISION

\*Micro-Cel® is Johns-Manville's new absorbent-grinding aid designed specifically for the insecticide formulator.





Doing Business With

Oscar &amp; Pat

By AL P. NELSON  
Croplife Special Writer

Oscar Schoenfeld was fuming, as he led Minnie into a small, dimly lit restaurant near the railroad tracks in the tiny town of Mervale. They made their way to a booth and Oscar quickly grabbed the menu and began scanning the prices.

"Ach, such people as your relatives!" Oscar snorted. "They expect us to come to an aunt's funeral and then don't give us a meal before we have to drive 120 miles back home."

Minnie looked wretched. "Well, they were so upset by Hilda dying, Oscar. Her only relative in town is that nephew and his wife. And they have seven children. How can they

invite anyone to meals? They got enough to take care of."

"Well," grumbled Oscar, "I do not like the idea of spending all that money for gas down here and back. And now we have to buy another meal on our own. Then no telling what that crazy McGillicuddy will do today when I am not around to cut costs. Ach, and I'll bet that Hilda won't leave you anything."

"Why should she?" asked Minnie. "You would never let her come and visit me. And you'd never let me come and see her."

Oscar frowned. "Well, I don't like relatives. You let them come and stay over night once, and they'll be

doing it all the time. Ach, and then first thing you know they stay on and on."

The waiter came just then. Oscar, as befitted a man of his character, ordered first, a hamburger steak at 90¢, and then looked sharply at Minnie. It was her cue to order the same and not dare to spend more.

Oscar then pulled out a folded copy of Croplife from his pocket and began reading it. "Oh, do you have to read that now?" Minnie said nervously. "I thought you were through looking it over. You sat for an hour in the funeral parlor reading it. I—I was so embarrassed, Oscar."

"I wasn't one bit," her husband

retorted. "Ach, I should stand around and gas and gas with all those relatives of yours I haven't seen in 10 years or more. Just like I was so crazy about them I had to talk and talk with them. Nein, I figured that all out. So I brought a copy of Croplife along. I knew what was coming."

"Well," conceded Minnie, "even if it does look impolite to read Croplife so long in a funeral parlor, I am glad that you take enough interest in your business to keep up with—with all those new things."

"I am not trying to keep up with anything," said Oscar sharply. "That's what's wrong with this country—everybody trying to get ahead of the next fellow, spending, spending, spending, and then first thing you know nobody can pay."

"Then—" offered Minnie, "why—" she broke off.

"Why do I read Croplife and other papers every week?" Oscar asked. "Ach, let me tell you, Minnie. I read Croplife to see if anybody is offering a fertilizer business for sale cheap—real cheap. Some day I will buy and get away from that McGillicuddy—when I get the right one."

Then Oscar spread his napkin and began buttering a roll from the large basket of rolls, and crackers and tiny slices of rye bread the waiter had put before them. "I also read Croplife to see what ads the manufacturers we buy from are running. I check very carefully to see what services those fellows are offering free that we can get, without paying for. By, golly, they don't slip anything over on me. And then I read Croplife to see how other dealers are cutting costs. That's what is important, Minnie, cutting costs."

"Is it, Oscar?" Minnie asked. Actually, she rebelled sometimes against Oscar's economy moves, but each time she did, she thought of their holdings in banks, lands and bonds, brought about by Oscar's penny pinching, and she admired him for that.

"You bet it is important," spluttered Oscar, now cutting his hamburger steak. He pointed at his wife with his fork. "Some people don't care about expenses. But someday this whole business will go 'poof,' Minnie, and all the debts will have to be paid. Then I will laugh. Mine have been paid for years. You know that."

"B—but merchandising ideas, don't you read those, too, Oscar?"

"Nein!" Oscar retorted, his face getting red. "There is too much selling going on today—especially in our place. Some people never care when they collect, they just sell, sell and sell. They think the more sales they make, the more profit they make. Minnie, they are wrong."

"Are they?" she ventured timidly.

"Are they?" Oscar echoed in a rising voice. In fact he was talking so loud that many other diners turned and looked, grinned and then winked at one another. "Making profit is what is important. You can't give stuff away, and that is what you are doing when you let people charge fertilizer and take their own time in paying. That dumb Pat can't see that."

"Ssh!" cautioned Minnie. "Not so loud. Someone may hear you and they may know Pat. It may get back to him."

"I don't care if it does!" Oscar shouted louder than before. "I would tell him so right to his face. He don't know nothing about business, that is, real business, Minnie. Ach, he don't know how much we make; he always has to ask Tillie or me. For months he never looks at our books. He just sells and sells, the fool!"

"Oh, well," sighed Minnie, "we eat and he eats—so we should be glad for that. It's getting dark, Oscar, we'd better go. It's a long drive."

Oscar looked at the three rolls and

it's just off the press..!

Croplife's second edition of

## BUG OF THE WEEK

a dealer's manual of insect pests

Here it is! The second edition of Croplife's Bug of the Week in 8½ x 11" booklet form. It's made up from reprints of the series appearing in Croplife during the past several months. The booklet includes 32 insect pests pictured and described—and all are in addition to the 21 which appeared in the original Bug of the Week booklet issued in 1954.

## ORDER FOR YOURSELF, YOUR CUSTOMERS

You'll find many uses for this interesting, factual booklet. It's ideal for use by salesmen, dealers—and their customers.

Clad in an attractive cover, the booklet is packed with accurate information about these insects:

European Corn Borer  
Khapra Beetle  
Red Flour Beetle  
Onion Thrips  
Pepper Weevil  
Rapid Plant Bug  
Rose Chafer  
Two-Spotted Mite  
Cabbage Aphid  
Rose Leaf Beetle  
Potato Leafhopper

Cotton Fleahopper  
Alfalfa Caterpillar  
Cowpea Curculio  
Corn Rootworm  
House Fly  
Spotted Cucumber Beetle  
Stink Bug  
Yellow-Striped Armyworm  
Blow-Fly  
White-Fringed Beetle  
Confused Flour Beetle

Corn Earworm  
Leafhopper  
Gypsy Moth  
Mexican Bean Beetle  
Strawberry Weevil  
Harlequin Bug  
Spotted Alfalfa Aphid  
Spider Mite  
Cadelle Beetle  
Sweet Potato Weevil

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The back cover has been left blank so it can be utilized by dealers and others for promotional purposes. Company name or your advertising message can be imprinted, making the booklet a valuable sales piece. Rates for imprinting on request. Give full details.

FIRST EDITION  
AVAILABLE

A limited quantity of the First Edition is still available at 25¢ a copy. It features 21 insect pests.

## clip coupon below

Fill in coupon below and mail with remittance to: Reprint Department, Croplife, Box 67, Minneapolis 1, Minn.

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Address .....

City ..... Zone ..... State .....

Check Type of Business

- ☐ Pesticide Formulator  
☐ Fertilizer Mixer  
☐ Dealer

If interested in purchasing supply with your imprint, please write copy for back page, and indicate number you would want. Price will be submitted by return mail. Copy for imprint (use separate sheet if necessary): .....

Quantity desired: .....



the two packages of crackers left in the basket on the booth table. "Minnie!" he said pointedly.

"Oh, Oscar," she whispered, "do I have to put them in my purse again? It—it makes me feel so cheap."

"Do what I say!" he ordered grimly. "We have paid for them. They were put here for us to use. If we can't eat them now we can eat them on the road."

Obediently, Minnie opened her purse, and then, when she thought no one was looking she put the rolls and crackers into it. With a sigh of relief she closed the pocketbook. "But you are going to leave a tip, aren't you?" she whispered.

"No," said Oscar. "Chances are we will never eat here again. Ach, this tip business is so foolish. I have saved lots of money by not tipping." Then he frowned. "But I am not satisfied with this place. They have granulated sugar instead of sugar lumps. We could have used five or 10 sugar lumps, too, Minnie. Believe me, you have to watch those things. We have to get our money's worth—everywhere we go."

### Phosphorus Uptake Ability of Corn May Be Inherited, Tests Show

ST. PAUL—Preliminary tests at the University of Minnesota indicate that the ability of corn plants to take up phosphorus from the soil may be inherited.

A. C. Caldwell, university soil scientist, and E. H. Rinke and Duane Linden, agronomists, conducted the tests using about 50 different inbred lines of corn on soil that had been fertilized with phosphate tagged with radioactive isotopes.

They found that some inbred lines took up nearly twice as much fertilizer phosphate as did others. Also, they found that when two high-phosphate-using inbreds were crossed, the resulting hybrids also tended to be high-phosphate users. Crossing low users tended to result in low-phosphate-using hybrids, and high users crossed with low users resulted in hybrids that, on the average, were intermediate in the amount of phosphate taken up.

That strengthened the theory that the ability of the plant to take up phosphate may be inherited. But more research will be necessary before this can be completely proven, the scientists say.

### John R. Thompson Joins V-C Bag Division

RICHMOND, VA.—John R. Thompson has joined the V-C Bag Division of Virginia-Carolina Chemical Corp. as sales coordinator, according to D. Harold Johnson, division manager. He will make his headquarters at 99 Park Ave., New York.

In making the announcement, Mr. Johnson said the position of sales coordinator has been created as a part of the V-C Bag Division expansion program.

Mr. Thompson has had 20 years experience in the industry, and will be responsible for customer relations, product development, technical service and marketing. He will work closely with V-C sales manager Walter B. Gillette. He comes to V-C from Union Bag-Camp Paper Corp. where his responsibilities included sales training and marketing. Previously he served as Union's headquarters sales manager.

### NORTH DAKOTA PLOTS

FARGO, N.D.—Twenty-eight North Dakota counties are planning perennial weed control demonstration plots during the 1957 growing season, reports L. A. Jensen, North Dakota Agricultural College extension agronomist.

### Nominations Needed For Spencer Award

KANSAS CITY, MO.—Spencer Chemical Co. has announced that nominations are in order for the third annual Charles F. Spencer Award for achievement in the field of agricultural chemistry. The award is administered by the Kansas City section of the American Chemical Society.

This citation, the only one in the ACS award family to honor work in agricultural and food chemistry, was founded in 1955 by Kenneth A. Spencer, president of Spencer Chemical Co., in memory of his father. The award is presented annually and consists of the Charles F. Spencer medalion, an honorarium of \$500, and round-trip travel expense to Kansas City for the presentation.

The selection of the 1957 winner will be made by a jury of twelve persons appointed by the Kansas City Section from ACS membership at

large. The jury will be selected on a geographic basis and will represent industry, research, and education.

Work to be eligible for recognition must be in the general field of agricultural or feed chemistry, although it may specialize in industry, education, and research. Nominees for the award need not be ACS members but they must be United States citizens and have done their work within the U.S. Nominating blanks and instructions are available on request from

Chairman, Charles F. Spencer Award  
American Chemical Society  
425 Volker Boulevard  
Kansas City 10, Missouri

Nominations must be received by June 1.

The 1956 Award winner was Dr. C. A. Elvehjem, biochemist and dean of the graduate school, University of Wisconsin. Dr. Ralph Hixon of Iowa State College was the 1955 winner.

Kenneth A. Spencer, in establishing

the award commented: "There is no field of human endeavor so enduringly important to man's welfare as the field of agricultural and food chemistry. Men of vision in agricultural chemistry have always labored to improve on life's necessities by providing more nourishing foods, better shelter, and better clothing. If man is to continue to have an improved standard of living, these endeavors must make vigorous progress . . . To this end it is a pleasure for me to make available this award . . . which will perhaps stimulate continued high endeavor in this important field."

### SURPLUS PLANES

SAN FRANCISCO—Government surplus TBM planes are useful as crop dusters, according to Charles T. Jensen, owner of a service in the Sacramento Valley. Mr. Jensen has purchased three such planes for \$3,600 each and has converted the single engine torpedo bombers to agricultural use.

### HEPTACHLOR CONTROLS FORAGE INSECTS WITHOUT CONTAMINATING MILK OR MEAT!

This year, Heptachlor will be used more extensively than ever for forage insect control, because Heptachlor provides effective control of forage insects without contaminating milk or meat. Tolerances for the use of Heptachlor on forage and other crops has been established under the Miller Bill, and confirmed by extensive tests. Among these was a special study made by the USDA, in which dairy cattle were fed alfalfa treated with Heptachlor at recommended dosages. Chemical analysis showed no trace of Heptachlor in milk from the test cattle. Heptachlor is such an effective insecticide that minimum amounts have residual effectiveness, yet are safe to use on pasture land and on crops fed to animals.

### HEPTACHLOR KILLS THESE FORAGE INSECTS AND MANY OTHERS!

Grasshoppers, alfalfa weevils, spittlebugs, leaf hoppers, sweet clover weevils, cutworms, lygus bugs, armyworms, harvester ants, plantbugs, Egyptian alfalfa weevils.

### MORE HEPTACHLOR SALES PROMOTION

Heptachlor sales promotion will be bigger than ever before, too! There will be more farm paper and newspaper advertising, more dealer promotional material, more direct mail, literature, and publicity.

HEPTACHLOR FORMULATORS! Mail coupon now for samples of Heptachlor materials to be used in Forage Insect Promotions!

**VELSICOL**

CHEMICAL CORPORATION

330 East Grand Avenue  
Chicago 11, Illinois

Please send samples of 1957 Heptachlor Forage Insect promotion materials.

Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

Zone \_\_\_\_\_

State \_\_\_\_\_

there's a  
hard year ahead  
for hungry  
forage insects...  
because of

**HEPTACHLOR**

**News!**

Velsicol Chemical Corporation will have Methyl Parathion available for the coming cotton growing season!





## Kansas Farmer Credits Fertilizer for Large Wheat Yield

HUTCHINSON, KANSAS—Vincent Seck, farmer south of here, is a firm believer in commercial fertilizer. His 41.5 bu. per acre yield in 1956 won second place in the Reno County wheat merit contest sponsored by the local chamber of commerce. "The fertilizer was a lifesaver," Mr. Seck said, "without it, I know I would have lost out completely."

It was on Sept. 1, 1955 that he got some additional land and wanted 15 acres of it in wheat. Central Kansas wheat yields are definitely dependent on date of soil preparation. He plowed the weed-grown land the same day he acquired it and then used the spring tooth and packer. He repeated the operations a week later.

He then gave the field a 90 lb. per acre application of anhydrous ammonia, plus 50 lb. of superphosphate. He packed the soil again and seeded

it to wheat on Oct. 20 which is considered rather late in this area.

Profiting from experience, Mr. Seck planted the same acreage to wheat last fall after thorough preparation of the land which included another 90 lb. shot of anhydrous ammonia. The wheat now is thickly stood, just a little over knee-high and very uniform. Mr. Seck is looking for another good yield this harvest—with heavy credit going to the fertilizer.

Mr. Seck is of the opinion that acre yield is not alone among benefits derived from fertilizer. The fertilizer gets the wheat off to a quick start in the fall, makes heavier growth for withstanding winter wind erosion, and the fertilizer seems to hold over very well for the next crop.

### LIGHTER DUTIES

LEXINGTON, KY.—Dr. W. A. Price, head of the department of entomology and botany at the Kentucky Agricultural Experiment Station, will enter semi-retirement this summer.

## FLEX-A-FOAM DUST MASKS

Dust protection your workers will welcome and wear in even the HOTTEST weather

★ Ideal for Hot Weather Filter's porous action absorbs and actually exhales body heat.

★ Flex-A-Foam's lightweight (only 1 ounce complete) makes it cool and comfortable to wear — not hot and cumbersome like old-fashioned respirators.

★ Flex-A-Foam is easier to breathe and talk through than an ordinary pocket handkerchief — does away with that stuffy, smothered feeling.

Your best Ounce of Protection against Irritating Dust

Sample only  
**\$1.45**  
postpaid  
(Industrial price only)

**FLEX-A-FOAM**  
DUST MASK

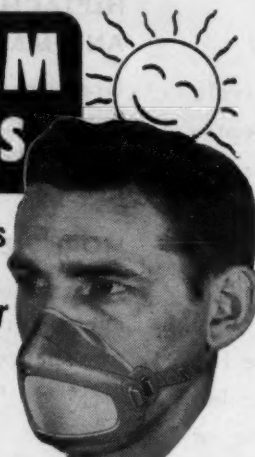
FLEXO PRODUCTS, INC. • Cleveland 13, Ohio

### UNMATCHED ECONOMY

Flex-A-Foam is the lowest priced *quality* respirator on the market today.

Flex-A-Foam's washable filter outlasts throw-away type by more than 100 to 1.

Fewer filter replacements with Flex-A-Foam Dust Masks mean fewer lost production hours.



## Today's biggest bargain in Spreaders! BAUGHMAN K-5 Series

### ● YOUR CHOICE OF . . .

- . . . 3 Drives
- . . . 3 Conveyors
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### ● STRONGEST SPREADER BODY EVER BUILT!

- . . . Reinforced top edge
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Compare Quality and Prices . . .  
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108 Shipman Road • Jerseyville, Illinois

Another Croplife Service to the Dealer:  
Clip Out This List of Names for Immediate Reference

## POISON CONTROL CENTERS NEAR YOU

Below are listed poison information centers now in operation, along with the names of their directors and where they may be reached on an emergency basis, day or night.

Experts at these centers have been thoroughly trained in the toxicology of pesticides and are prepared to give accurate information on the course of action to be taken if local physician should be unavailable or unacquainted with antidote for specific pesticide.

Keep This List Handy Near Your Telephone!

### ILLINOIS

Chicago, Stritch School of Medicine, 706 S. Wolcott St., Joseph Christian, M.D.

Springfield, St. John's Hospital, J. Keller Mack, M.D.

### INDIANA

Indianapolis 5, 401 East 34th Street, Irving Rosenbaum, M.D.

### IOWA

Des Moines 14, Blank Hospital Clinic, Poison Information Center of Iowa, 1200 Pleasant Street, Executive Secretary

### MICHIGAN

Grand Rapids 2, Mark W. Dick, M.D., 1508 McKay Tower, GL 1-3591

### OHIO

Cincinnati 2, Academy of Medicine, 4th and Main Streets, Edward Wilenborg, PA 1-2345, Robert H. Kotte, M.D., AV 1-4350

### OKLAHOMA

Oklahoma City 4, University of Oklahoma Medical Center, 800 N.E. 13th Street, H. A. Shoemaker, Ph.D., RE 6-1511

### WISCONSIN

Milwaukee, County Medical Society, 208 E. Wisconsin Ave., James O. Kelley

Next week Croplife will publish a listing of poison control centers in the states of Arizona, California, Colorado and Washington. These lists were compiled by the National Agricultural Chemicals Assn., 1145 19th St., N.W., Washington, D.C.

## Iowa Soil Moisture Situation Improved

AMES, IOWA—Soil moisture conditions are more favorable in all parts of Iowa than they were in the spring of 1956, E. R. Duncan, agronomist, and Robert Shaw, climatologist, of Iowa State College report. Their report is based on measurements made in the March 29 to April 10 period.

In the southern half of the state, the situation has improved markedly

since last November. Soil moisture in the northern half of Iowa has changed little since that date. Northwest Iowa is least improved.

That region and a small part of the central area have from 1.5 to 4.5 inches of plant available moisture in the top five feet of soil. This is less than 50% of normal. Prospects for high corn yields in these areas are not good, Mr. Duncan said.

Southwest, northeast and a small part of the central area have "fair" subsoil moisture. The range is from 50% up to normal—5 to 10 inches. Corn yield outlook will be favorable where moisture is good. At less favorable locations, rainfall during the growing season will determine the success of the crop. The southeast quarter of the state has 8 to 10 inches of soil moisture. This is essentially normal. Corn yields will not be limited if rainfall distribution during the growing season is normal.

## Texas Firm to Make Plastic Irrigation Pipe

LUBBOCK, TEXAS—The United Pipe & Tube Co., a new company formed to manufacture plastic irrigation pipe and tubes, has been opened in Lubbock. The new firm will concentrate on producing pipe for irrigation use, but will also make a somewhat similar product for the oilfields and gas lines.

The president of the new company, Walter S. Pendergast, explained that Lubbock was chosen as the company's location because it was in the center of an irrigation area watered by more than 35,000 wells. W. F. Ripptoe and Rex Slater will serve as vice presidents. Mr. Slater will be in charge of production, while Mr. Ripptoe will head a subsidiary of the company to be called the High Plains Irrigation Supply Co.



**WHAT'S NEW**

(Continued from page 11)

which involve the amounts and quality of insecticides that should be used in a municipal insect control program. A copy can be obtained by checking No. 6568 on the coupon and mailing it to Croplife.

**No. 6574—Power Sprayer**

A new 3-gal. per minute "Mighty-Mite" power sprayer has been introduced by the F. E. Myers & Bro. Co. The sprayer is said to provide the benefits of boom spraying with up to a 21-ft. swath. Rough ground has little effect on the spray pattern of the sprayer, resulting in a uniform spray coverage, company officials said. The sprayer weighs approximately 40 lb. It is designed for 30 to 60 lb. operating pressure although the pump itself is capable of producing 300 lb. maximum pressure. Secure complete details by checking No. 6574 on the coupon and mailing it.

**No. 6573—Company Booklet**

The American Chemical Paint Co. has published the charter issue of the "ACP Pioneer," a 24-page booklet devoted to information about the company and its products. A chapter, with a number of pictures and illustrations, is devoted to the agricultural chemicals division. Described are research and development facilities, synthetic plant growth regulators, weed control products and the company's research farm. The booklet may be secured by checking No. 6573 on the coupon and mailing it to Croplife.

**No. 6570—Repellent Base**

The Montrose Chemical Co. announces it is now offering the new insect repellent material, Diethyl Toluamide, which was developed by the U.S. Department of Agriculture. Diethyl Toluamide (DET) is described as an all-purpose insect repellent and it has been released for commercial use. DET can be applied directly to the skin or clothing and protects the user against mosquitoes, ticks, chiggers, fleas and biting flies for up to eight hours, it is claimed. Montrose is offering a high concentration meta isomer of Diethyl Toluamide to formulators of insect repellent lotions and similar preparations. Secure complete details by checking No. 6570 on the coupon and mailing it to Croplife.

**No. 6576—Insecticides Bulletin**

A technical bulletin of information about its Perthane insecticides has just been issued by the Rohm & Haas Co. Designated by the company as a formulation and labeling guide, it is of interest to formulators of agricultural chemicals. The bulletin contains suggested labels, giving directions for use of the product in controlling cabbage loopers, cherry fruit flies, leafhoppers and other insects. Also included are suggestions for formulating technical Perthane into dusts, wettable powders and emulsifiable concentrates. This bulletin number AG-82 may be obtained by checking No. 6576 on the coupon and mailing it to Croplife.

**EXTRA BENEFITS**

**STILLWATER, OKLA.**—Fertilizer tests on wheat indicate that grain yields alone do not sufficiently measure the beneficial effects of phosphorus fertilization, the Oklahoma Agricultural Experiment Station reports. The increased initial growth and tillering brought about by phosphorus fertilization produce extra wheat pasture and protects the soil against wind erosion, the station says.

**Water-Soluble Phosphorus Discussed by Agronomist**

**AMES, IOWA**—Corn yield response to starter fertilizer increases as the percentage of water-soluble phosphorus in the starter is increased, according to Joe Stritzel, Iowa State College agronomist.

Mr. Stritzel said tests over a period of six years at the Iowa Agricultural Experiment Station bear this out, since trials have shown consistently that water-soluble phosphorus gives better results than phosphorus forms not readily soluble in water.

In most starter fertilizers, the nitrogen and potassium are soluble in water and readily available to plants.

Phosphorus solubility may vary, however, from 0 to 100%. For example, calcium metaphosphate (0-62-0) contains no water-soluble phosphorus, and would thus be a poor source of phosphorus to use in a mixed fertilizer to be placed in the hill or row for

corn, Mr. Stritzel indicated. However, it is satisfactory as basic plow-down fertilizer for corn, he added.

Examples of phosphorus sources with higher water solubility are 0-20-0 and 0-45-0. These sources, in ammoniated mixed fertilizers, are usually intermediate in water solubility. Ammonium phosphates contain 100% water-soluble phosphorus.

Variations in phosphorus solubility have been reflected in performance of corn in over 20 field experiments, Mr. Stritzel said. Marked differences in early growth have been recorded.

Corn fertilized with material containing highly water-soluble phosphorus showed a definite early growth advantage over corn receiving phosphorus with lower solubility, or no phosphorus. Early growth increases in tests have usually resulted in corresponding yield increases, Mr. Stritzel reported. He recommends using a starter fertilizer with a phosphorus content that's at least 50% water soluble.

**Top Fertilization Beats Buying More Land, Farm Economist Says**

**ST. PAUL**—It's much more practical to add top amounts of fertilizer to soil already in cultivation than to buy additional land, according to Ermond Hartmans, a University of Minnesota agricultural economist. Mr. Hartmans said that the size of a farm should be figured on the basis of how many bushels per acre it can produce, rather than how many acres it has.

Many farmers can easily make their farms "bigger" by using fertilizer to supply the soil with nutrients needed for top yields, he said. This enables the soil to produce more bushels of corn and small grains per acre, more tons of pasture, hay and silage and more pounds of milk, beef and pork.

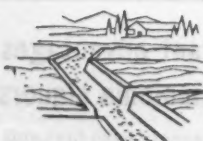
Mr. Hartmans said "fertilizer offers the best means of getting the most business out of farm soil."

**For hard to kill weeds—  
use the "Old Proven Standby"**

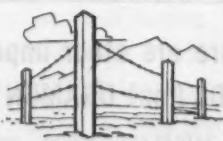
# PENNSALT SODIUM CHLORATE

Sodium Chlorate is the time-proven herbicide to control those hard-to-kill, deep-rooted perennials. When used properly, it destroys both tops and roots of all plants including weeds and grasses. Heavy applications may prevent plant growth for a year or more.

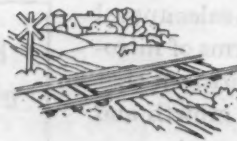
KILLS Bindweed, Canadian Thistle, Hoary Cress, Leafy Spurge, Russian Knapweed, Bermuda Grass, Quack Grass and many other perennial weeds and grasses.

**FOR POSITIVE CONTROL OF WEEDS AND GRASSES**

Along ditches and canals

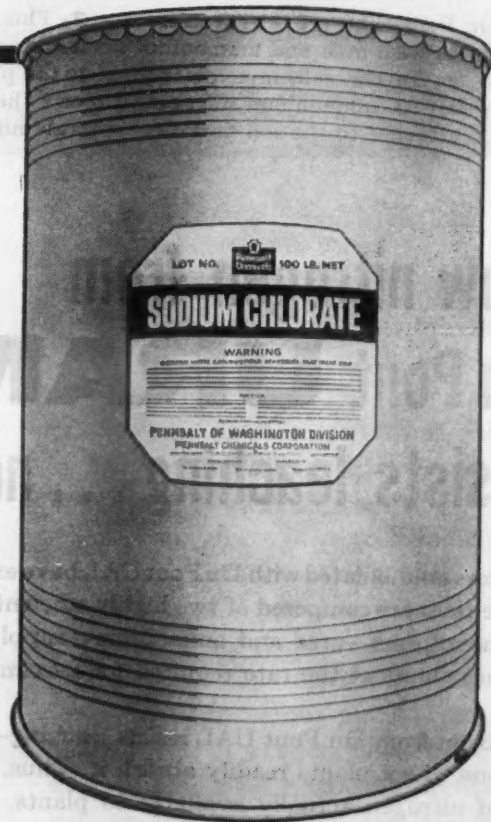


Along fences



Along roadsides and rights-of-way.

**IN THE MIDWEST**—write or telephone for free bulletin No. A-8 to the PENNSALT CHEMICALS Northern Agricultural Chemicals office, 309 Graham Building, Aurora, Illinois. Phone Aurora 6-8545.



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## FARM SERVICE DATA

### Extension Station Reports

A Wisconsin soils extension specialist reports that the new wheel track method of planting corn on freshly plowed ground is saving farmers as much as \$5 an acre in labor, time and machinery costs.

Arthur E. Peterson, of the University of Wisconsin, says that with this method the planter is pulled behind the tractor and the corn is planted in the tractor tracks. A field should be plowed and planted the same day, he reports. The starter fertilizer can be drilled in the row at planting time.

Mr. Peterson says that attachments

are now available for placing the fertilizer in a band two inches to the side and an inch or two below seed level. He reports that this is the most efficient method of fertilizer placement for corn.

He lists these other advantages of wheel track planting: (1) reduce the amount of soil erosion; (2) yields are just as high or higher than with ordinary soil preparation methods; (3) the corn will germinate uniformly particularly in dry years. Moisture left in freshly plowed ground is usually enough for good germination; (4) weed control is more efficient.

The soil between the rows dries out and weed seeds have a tough time growing. A weed spray can be used over the rows.

★

The best time to treat corn borers in sweet corn is when the tassel ratio in the field is between 40 and 50, advises H. B. Petty, Illinois extension entomologist at the University of Illinois College of Agriculture and Illinois Natural History Survey.

The tassel ratio measures the height of the developing tassel in relation to the height of the growing plant, Mr. Petty explains. Only plantings with 20 or more unhatched egg masses per 100 plants when the tassel ratio is 20 or above need to be sprayed, he said. The tassel ratio increases as the plant moves closer to the tassel stage.

Mr. Petty and W. H. Luckmann, Illinois Natural History Survey entomologist, have prepared a new publication, "Controlling Corn Borers in

Sweet Corn." It discusses planting schedules, how to determine the tassel ratio, what fields to treat, when to treat for first-generation borers and how to control second-generation borers.

★

Leafy spurge, a stubborn noxious weed, with broad-leaved blades and numerous seed pods, has invaded 67,000 acres in 54 counties in South Dakota.

"However, experiments conducted at the South Dakota State College Experiment Station show that leafy spurge infestations can be eliminated or greatly reduced in size," says Lyle Derscheid, associate agronomist.

In some of the test plots in a 30-acre leafy spurge infestation near Clear Lake, more than 90% of this weed was eliminated in three years.

Mr. Derscheid explains how it was done: The infested plots were cultivated with a duckfoot field cultivator seven times during the summer, seeded to bromegrass in August, and sprayed with 2,4-D at the rate of one and one-half pounds per acre for two years.

The agronomist says the rate of applications and date of treatment appear to be unimportant. "Application of 2,4-D the third year would probably have given even a higher percentage of elimination," he said.

★

Irrigators should protect their corn fields from corn rootworms, even if the fields were sprayed last year. This is the advice of Robert Roselle, University of Nebraska extension entomologist. Serious damage is likely in dryland corn where it is being grown for the second and third successive years.

Damage will be at a minimum in dryland fields that have been in other crops for two years. There is no method to predict the number of rootworms present, he said.

★

Even though farmers may be looking for extra ways to reduce costs this year, it won't pay them to cut down on fertilizer for the corn crop.

That advice comes from Harold Routhe, extension farm management specialist, and Charles Simkins, extension soils specialist at the University of Minnesota. They point out that with normal weather, fertilizing corn according to soil test will pay off even if corn drops to \$1 bu. this fall.

They base that statement on average fertilizer returns as determined from farm demonstrations and experimental work around southern Minnesota in recent years.

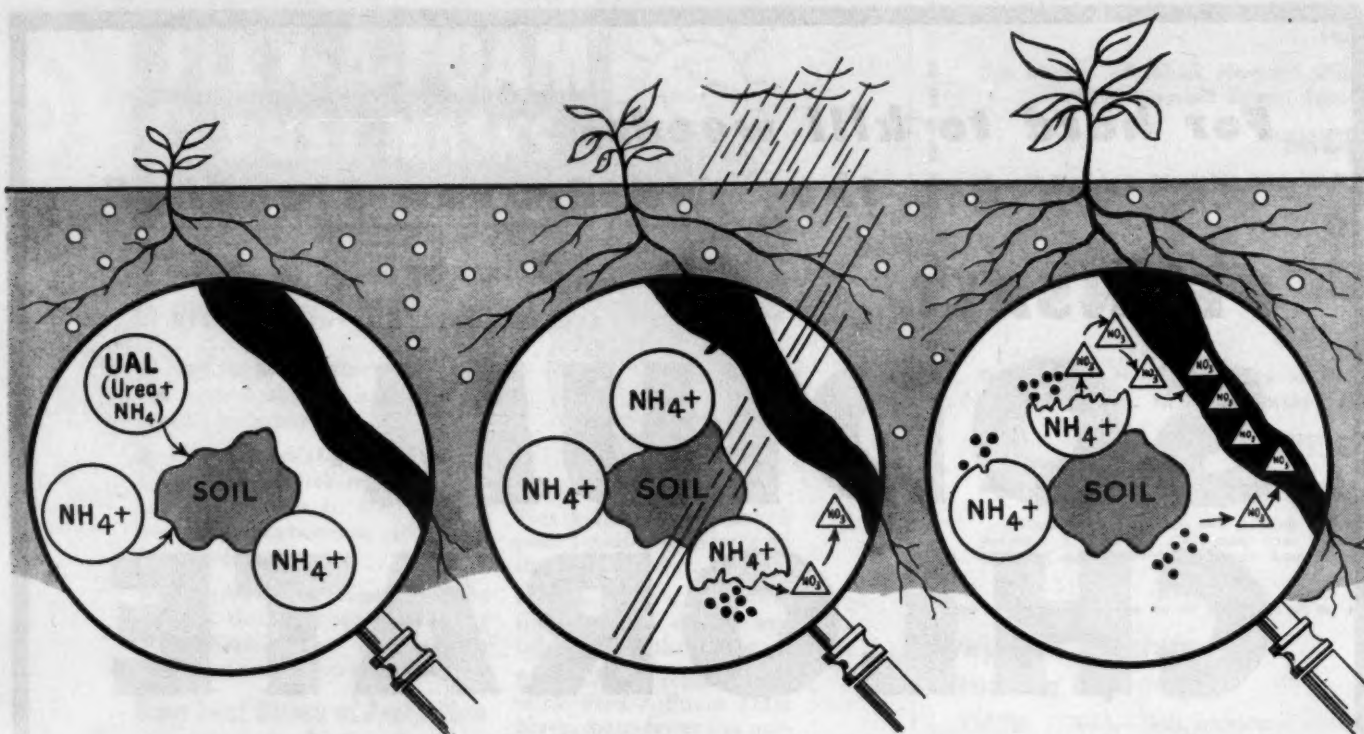
These figures show that unfertilized first-year corn, after legume crops, yields about 20 bu. per acre lower than fertilized corn fields. For second-year corn, unfertilized fields average 30 bu. less.

Fertilizing according to soil test in southern Minnesota averages about \$12 per acre for first-year corn and \$18 for second-year corn, based on current fertilizer prices.

In both cases, though, the average return is \$1.67 for each dollar's worth of fertilizer put on the land—figuring corn at \$1 bu.

### Dusting Firm Expands

LOS BANOS, CAL.—Inland Aviation Co., a pioneer crop dusting firm, has increased its fleet to a total of eight planes, with an average of 10 pilots. The firm, founded in 1944, by Bernard Negra, Lloyd Stearman and the late Thomas Jorgensen, reports increasing demand by crop growers for spraying operations from the air. Bill Brown is now a partner in the firm.



1. Du Pont UAL provides fertilizer mixtures with urea and ammonium nitrogen. In the soil, urea quickly converts to ammonium nitrogen, which attaches to the soil particles.

2. This ammonium nitrogen resists leaching. Nitrogen is made available to the plants when soil bacteria convert the ammonium nitrogen to nitrate nitrogen.

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Nitrogen from Du Pont UAL resists leaching—remains in the root zone where plants readily absorb it. Thus, on the basis of units of nitrogen actually available to plants, UAL is a very economical investment.

Four formulations are available, including UAL 37—a special composition that releases nitrogen even more slowly. For technical assistance and information on the solution best suited to your use, write Du Pont.

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- Won't corrode regular fertilizer manufacturing equipment, including ordinary steel and aluminum.
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## PESTICIDE SITUATION

(Continued from page 1)

1955 as the previous year, but rose appreciably in 1956. This increase comprised largely the primary producers' stocks of technical chemicals.

For instance, 28 of these firms held title on Sept. 30, 1955 to 55,878,000 lb. of technical materials involving 29 distinct compounds. The same firms reported 95,310,000 lb. of the same chemicals on Sept. 30, 1956, up 71% from the previous year. Comparisons of the two years are based solely on figures from firms reporting both years.

The 1956 season in the Cotton Belt was characterized (1) by dry conditions in much of the area west of the Mississippi River, and (2) by the shift to calcium arsenate and phosphorus insecticides where boll weevil resistance to chlorinated hydrocarbon insecticides might be a factor.

North and South Carolina, Georgia and Alabama together estimate the use of about 75 million pounds of cotton dusts in 1956. Louisiana and Arkansas consumed 77 million pounds of dusts and over 1,400,000 gallons of spray concentrates on their cotton crop. New Mexico and Arizona together applied about 25 million pounds of cotton dust.

Cotton acreages treated in 1956 were estimated by the following states:

South Carolina	575,591 acres
Alabama	574,858
Mississippi	1,565,000
Louisiana	540,000
Texas	3,806,673

An area of 1,366,900 acres of timbered land, largely seriously infested sections of Montana, Idaho and New Mexico, was sprayed from the air in 1956 to control the spruce budworm, using 1 lb. DDT per acre. A further 15,000 lb. DDT were applied in California against the Douglas fir tussock moth. About 305,000 individual trees were hand sprayed, largely in Colorado, Montana, and the southeastern states for bark beetle control.

This work included use of 310,000 lb. ethylene dibromide applied for the control of Engelmann spruce beetle in Colorado at 1½ to 2 lb. per tree, an estimated 270,000 lb. benzene hexachloride against such bark beetles as the southern pine beetle and the black turpentine beetle in the southeastern states as far west as Mississippi and Tennessee, and 2,000 lb. orthodichlorobenzene to control the Black Hills beetle in South Dakota, Colorado, New Mexico and Utah. 2,4-D and 2,4,5-T (44,000 lb. acid basis) were applied mostly to destroy wild currant and gooseberry bushes in the control of white pine blister rust.

In 1957, spruce budworm control will include treatment of 750,000 acres in Montana and possibly 500,000 in northern Idaho.

Plans have been made for control operations in Canada this year more extensive than any ever attempted on the North American continent. DDT (½ lb. per acre) is to be applied against the spruce budworm on about 5,000,000 acres in New Brunswick and 1,500,000 acres in Quebec (Gaspé Peninsula). DDT will be used at 1 lb. per acre on about 150,000 acres in British Columbia (Vancouver Island) against the black-headed budworm.

Nearly a million acres were sprayed by aircraft in the Northeast during the summer of 1956 in the federal-state effort to halt the spread of the gypsy moth and to reduce its numbers. The rate of application was 1 lb. of DDT in a gallon of light oil per acre.

Plans have been announced to spray almost 3 million acres of forest land in parts of New York, New Jersey and Pennsylvania in 1957. Spraying, scheduled to have begun about April 15, will continue to mid-June. Contracts awarded for the application of 2,400,000 gal. of DDT spray, to include all costs of insecticide, mixing, transportation and ap-

plication, are for an average of 73¢ a gallon.

State control operations will be conducted in some infested portions of nine northeastern states. A spray program in Michigan will cover 31 square miles in two counties, using about 7,500 gal. of spray. Since a single DDT treatment is adequate to clean up the infestation in a given area, plans for eventual eradication of the gypsy moth include spraying in 1958 an area north and east of the main area treated this year.

Finding of the Mediterranean fruit fly, destructive pest of citrus and many other fruits and vegetables, in Florida last April set off an all-out federal-state program to stamp out the infestation. Eradication has depended mainly on large-scale aerial spraying, but includes also the use of ground-operated mist blowers to ap-

ply malathion bait spray. Granular dieldrin and heptachlor have been applied to the soil under known host plants, the treated area being 29,000 acres, the rate 5 lb. per acre.

Some 50,000 insect traps, baited with angelica-seed oil (and later with a synthetic substitute), have been used to determine accurately the extent of the infested area. Nearly 800,000 acres have been treated with insecticides, most of them several times. Counting repeated treatments, the aggregate number of acres sprayed totals over 6 million. One-half pound of malathion with a yeast bait (enzymatic protein hydrolysate) is applied to each acre.

Major grasshopper infestations of cropland in 1956 extended from Wisconsin and Minnesota across western Illinois, Iowa and parts of Missouri and Kansas. Some areas suffered the greatest crop losses in 20 years. Late summer and fall surveys to determine the potential severity of 1957 infestations indicated the largest increase on crop-

CROPLIFE, May 27, 1957—17

Table 5—Rangeland Acreage Treated for Control of Grasshoppers and Mormon Cricket in 1957

State	Grasshoppers (acres)	Mormon cricket (acres)
Arizona	114,789	.....
California	14,622	.....
Colorado	233,587	2,464
Idaho	81,557	3,080
Kansas	111,049	.....
Missouri	1,760	.....
Montana	29,045	.....
Nevada	16,340	8,624
New Mexico	674,614	.....
North Dakota	960	.....
Oklahoma	222,545	.....
South Dakota	6,594	.....
Texas	282,565	.....
Utah	2,020	34,064
Wyoming	269,807	7,515
Totals	2,061,854	55,747

Source: Plant Pest Control Branch, ARS.

land to be in Minnesota and North Dakota.

In many other areas control may be necessary to avoid grasshopper damage to cultivated crops. In 1956 more than 2 million acres of low value rangeland were treated to control grasshopper (Table 5). Control operations would have been justified on much more of the rangeland that

# Fertilizer advertisers prefer Successful Farming

Fertilizer advertising pages	1956
Successful Farming . . . . .	28.38
Capper's Farmer . . . . .	18.46
Farm Journal . . . . .	10.77

In 1956, manufacturers of fertilizer concentrated most of their advertising in **SUCCESSFUL FARMING**—as they have for each of the past five years.

Makers of pest controls and sellers of crop machinery and equipment also ranked SF at the top.

**SUCCESSFUL FARMING** sells more—because it has more of its circulation among the farmers who can buy more than 44% of US farmers who earn 91% of total national cash farm income.

Source: Bureau of Census, manual for better

farm business, **SUCCESSFUL FARMING** is equally valued for its contributions to better living. Its practical, illustrated service articles show the nation's best farmers how to increase output, yields, and profits by all modern means . . . including commercial fertilizer.

SF subscribers have spendable cash for investment in anything which gives greater output—are big earners, with average cash income from farming alone of around \$10,000 for the past several years. On prosperous farms averaging 285.8 acres, SF readers need what you have to sell. SF's 1,300,000 circulation delivers profitable sales most efficiently at lowest cost!

For the full story on your best market and medium, ask the nearest SF office.



MEREDITH PUBLISHING COMPANY, Des Moines . . .  
with offices in New York, Chicago, Detroit, Philadelphia,  
Cleveland, Atlanta, San Francisco, and Los Angeles.



was infested. The largest areas of potentially severe and very severe grasshopper infestations of rangeland for 1957 are in Kansas, Oklahoma and the Texas Panhandle.

The fastest spreading foreign insect pest ever to invade this country, the spotted alfalfa aphid, arrived in the U.S. in 1954 and now occurs in 30 states. The area infested by the end of 1956 extended from California to the East Coast, northward to southern South Dakota, Minnesota and Wisconsin.

East of the Mississippi River it included Illinois and southwestern Indiana with spotty local damage reported in every state south of the Ohio and Potomac rivers. Heavy reduction in alfalfa yields resulted from infestations in some western states. Malathion and parathion were the materials most commonly used on alfalfa hay crops.

Surveys of fall populations of European corn borer larvae in 1956 showed a reduction in the North Central

states over the previous year while a build-up occurred in the eastern states. Heaviest concentrations in the East are in Rhode Island, New York (Long Island), New Jersey, southeastern Pennsylvania, and Delaware.

The continued spread of the imported fire ant is causing concern. Originally reported in southern Alabama about 1930, the insect is now scattered throughout the Mid-South, principally in Alabama, Mississippi, Louisiana and parts of Florida, Georgia and Texas. Many suggestions have been made regarding a publicly supported control program against this vicious and destructive pest. Heptachlor, dieldrin, chlordane and aldrin are recommended for its control.

The effect of the soil bank on the consumption of pesticides is, for lack of any good basis for prediction, an open question. Reduction of crop acreage will tend to reduce herbicide usage. If anticipated profits appear to warrant the investment, pesticides applied to protect the crop may be

used in large quantities to assure maximum yields on the fewer acres.

The national highway construction program is expected ultimately to result in an annual expenditure of 100 million dollars for chemicals and their application. The federal-state cooperative plan for a 41,000 mile interstate road system will bring over a million acres of right-of-way under roadside maintenance.

Over two-thirds of the right-of-way of an 8-lane and three-fourths of a 6-lane highway will lie in the category of roadsides. The average is 25 acres of roadside per mile of these highways. Rural roads have at least 3 acres of roadside per mile.

Only about 10% of roadsides now receive chemical treatment. Of the pesticides applied by the Connecticut State Highway Dept. 36% are insecticides and fungicides, the remainder weed killers.

Fertilizer-pesticide mixtures, ac-

cording to a survey reported in 1956 are sold in 35 out of 43 states replying and also in Puerto Rico. Aldrin, chlordane, dieldrin and heptachlor were the pesticides most often permitted, aldrin being well ahead of the other chemicals.

Eighty percent of the \$750,000 cost of insect control on the Ohio apple crop in 1956 is estimated to have been directed against the codling moth (60%) and orchard mites (20%). Losses to this crop in spite of control practices are believed to have amounted to \$245,000. The cost of insect control on Ohio vegetable crops amounted to \$1,145,000 (66% of this cost on potatoes and 14% on tomatoes); losses to vegetable crops came to \$350,000.

The acreage of crops, forests, etc. treated with pesticides from the air according to the Annual Survey of Aerial Work Aviation Activities by the CAA, increased greatly in 1955 over 1954. In 1955 the treated area amounted to over 45 million acres (Table 6) compared with 31.1 million in 1954 and 33.9 million in 1953.

Table 6—Aerial Application of Pesticides and Defoliants in the U.S. in 1955

Activity	Area treated (acres)	Chemicals applied (000's omitted)	
		Dry (lb.)	Liquid (gal.)
Insect control	45,316	265,808	51,274
Crops, orchards, etc.	37,456	264,442	41,184
Forests	6,091	411	7,770
Towns	1,506	218	1,858
Soils	263	737	462
Plant disease control	1,229	15,439	4,787
Weed control	5,291	119	8,449
Brush control	297	285	1,047
Defoliation	2,204	20,680	11,865
Total	54,337	302,331	77,622

Source: CAA, Office of Flight Operations and Airworthiness.

Acreages treated in 1955 were distributed as follows: 5% in Region 1 (Northeast to and including Ohio, Kentucky and Virginia), 51% in Region 2 (Southeast and South including Oklahoma and Texas), 9% in Region 3 (North Central States except Ohio and Kentucky), and 35% in Region 4 (Mountain and Pacific States). Comparable figures for 1956 are not yet available.

Production of DDT in the calendar year 1956 amounted to 138,963,000 pounds, nearly 10 million pounds more than in the record year of 1955. The comparable figure for the crop year 1955-56 was slightly less, namely 137,747,000 pounds. In the five months October, 1956 through February, 1957, a further 52,980,000 pounds were produced.

DDT stocks in the possession of eight primary DDT producers on Oct. 1, 1956 were nearly 17 million pounds or about twice the producers' inventory of a year before. Exports during the 1955-56 crop year were 54,821,000 lb., compared to 50,968,000 pounds in the previous 12 months. Domestic disappearance of DDT at the producers' level in 1955-56, therefore, was about 75 million pounds.

Actual consumption may have been as low as 65 million pounds. Public programs, federal, state and municipal, utilize large quantities of DDT in the control of spruce budworm, gypsy moth, elm bark beetles (carriers of Dutch elm disease), mosquitoes and flies.

Production of benzene hexachloride (gamma basis) in 1956 (calendar year) amounted to 14,369,000 lb., a considerable increase over any year since 1952. During the 1955-56 crop year, 13,535,000 lb. were produced. In the five months October, 1956 through February, 1957, a further 5,245,000 lb. (gross basis) was 30,733,000 lb. were manufactured.

This compares with 4,372,000 lb. (gamma) produced in the five months following October 1, 1955. This higher rate of production is despite a large producer inventory at the end of the 1956 growing season.

Exports of BHC (gamma) were somewhat lower in 1955-56 than in the previous crop year (3,537,000 lb. compared to 3,941,000 lb.). Domestic

# "Open Season" on Codling Moth right up to Harvest!

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## Ryania

Control codling moth throughout the growing season! Ryania results in better fruit finish—no pitted or scarred skins! And only Ryania gives you all of these important extra advantages:

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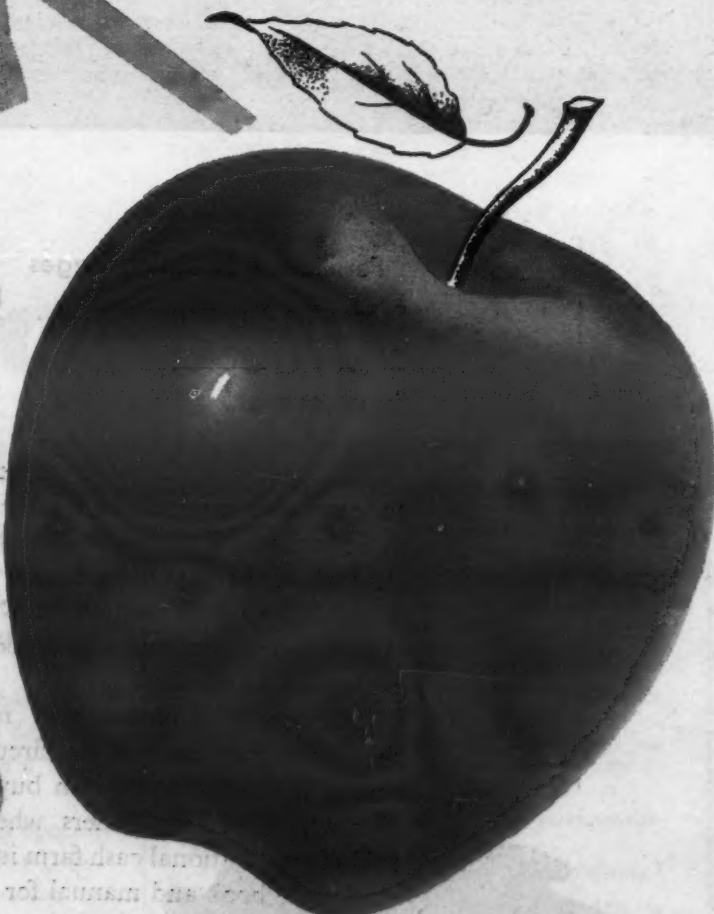
Ryania has given outstanding results in thorough testing by USDA and state testing stations in apple-producing areas. It is highly recommended for all-season use and particularly for pre-harvest sprays.

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Agricultural Chemical and Insecticide Division

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disappearance from producer level was greater than for several years. Eight primary producers reported, however, that their stocks Sept. 30, 1956 were 3,124,000 pounds gamma (15,677,000 lb. gross) compared to 1,512,000 lb. (7,685,000 lb. gross) on the same date in 1955. A breakdown of BHC inventories by grade classes for all producers and mixers reporting is shown in Table 7. Actual consumption is believed to have been 8.7 to 9.0 million pounds gamma basis. With the exception of production data, all BHC figures given here include lindane.

Table 7.—Producers' and Mixers' Inventories of Unformulated Benzene Hexachloride on Sept. 30, 1955 and 1956, by Proportion of Grade Classes

Grade class	Gross basis		Gamma basis	
	1955	1956	1955	1956
12-25% gamma	81.1	80.5	57.5	54.6
26-46% gamma	17.1	17.0	33.5	33.0
99% gamma (lindane)	1.8	2.5	9.0	12.4

Production of insecticides of the chlorinated hydrocarbon group (aldrin, chlordane, dieldrin, endrin, heptachlor and toxaphene) in 1955-56 was 80,418,000 lb. compared to 64,031,000 lb. the previous crop year. In Illinois, Iowa and Nebraska 25,693,000 acres of corn were planted in 1956 of which 2,422,020 acres were treated with soil insecticides. Fifty to 60% of the treated acreage in Illinois and Iowa received the insecticide in mixtures with fertilizer.

Organic phosphorus insecticides increased in importance as cotton insecticides in 1956, due to a shift from chlorinated compounds to which the boll weevil in some areas is developing resistance. In 1956 the use of parathion spray concentrates and 1% dust fell off in Louisiana from the previous year while mixtures of parathion with calcium arsenate and DDT came into extensive use on cotton. Methyl parathion dust mixtures and liquid sprays also were applied in large quantities.

Many acres of cotton in Mississippi were treated with malathion and methyl parathion. It has been estimated that use of methyl parathion on cotton increased tenfold in 1956 with further expansion expected in 1957. Several producers plan for the first time to make this compound and have supplies ready for the 1957 season.

Large amounts of malathion are being consumed in the 1956-57 eradication program against the Mediterranean fruit fly in Florida. Other organic phosphorus compounds in common use on cotton or promising for widespread acceptance on that crop are "EPN" and "Guthion" (Bayer 17147). Many others have special uses or are in various stages of development. Demeton, the active principle of "Systox," is recommended for use on cotton. Thimet is a second systemic used only in the custom treatment of cotton seed for planting.

Lead arsenate production dropped about 20% in 1956. Of the approximately 1,000,000 lb. used in California about 85% is the basic form.

Sales of calcium arsenate rose markedly in the 1956 season to about 20 million pounds. This was because of the trend away from chlorinated hydrocarbon insecticides in areas suspected of boll weevil resistance. Sales in Louisiana rose to about 9 million pounds from 1,840,000 lb. in 1955. Two million pounds were used on Arkansas cotton in 1956.

Cryolite sales reported in Louisiana for 1956 were less than 100,000 pounds (Table 8).

Table 8.—Sales of Ryania and Cryolite in Louisiana for Sugarcane Borer Control

	1953	1954	1955	1956
Ryania, 40% lb.	1,456,650	2,384,650	574,150	2,460,500
Cryolite lb.	1,884,295	39,116	191,295	99,575

Source: Louisiana Agricultural Extension Service.

Extraction of pyrethrum flowers near producing areas before export to this country saves freight costs and shipping space, and reduces de-

Table 9—Pyrethrum Imports

Calendar year	Flowers	Powder	Extract	Estimated total
	Pounds	Pounds	Pounds	flower equivalent Pounds
1953	7,563,546	46,384	5,480	7,701,263
1954	6,915,882	0	72,560	8,125,215
1955	4,797,489	0	155,137	7,423,772
1956	4,697,576	0	249,566	7,190,342

Source: U. S. Bureau of the Census

terioration of pyrethrins. In addition to extraction facilities in Kenya, a plant now extracts flowers at Bukavu, Belgian Congo. Another is projected in the Congo to start operation in late 1957.

Small quantities of Japanese 15% extract are received in the United States. The Suez situation appears not to have interfered greatly with the movement of pyrethrum from Africa. Some extract was recently shipped from Belgian Congo by air. A considerable proportion of pyrethrum is customarily carried around

the Cape of Good Hope. The trend to extraction in the country of origin (Table 9) requires a change-over in processing equipment in this country.

Commercial synergists used to extend pyrethrum include piperonyl butoxide, n-propyl isome and sulfoxide, all of which are derivatives of safrol. The principal source of safrol is imported ocotea cymbarum oil distilled from canela sassafras, a Brazilian tree. A minor source of safrol is Japanese camphor oil. A new powerful synergist for pyrethrins, al-lethrin, and cyclothrin is Sesoxane

which also requires ocotea cymbarum as a raw material.

Rotenone imports rose somewhat in 1955-56 over the previous crop year. During the summer it was reported that the supply was becoming short because of heavy demand as the result of exemption from tolerance limitations on raw agricultural commodities.

Imports during the fourth quarter of 1956 amounted to 2,034,000 pounds of whole and powdered root, more than in any quarter since the middle of 1951. Nearly 7,000,000 lb. were received during the entire calendar year 1956. Although a large proportion of rotenone supplies in the U.S. is used in killing rough fish in infested lakes, etc., this use has not been separated from strictly agricultural consumption.

Copper sulfate use in agriculture appears to be yielding more each year to synthetic organic fungicides (captan, ferbam, glyodin, zineb, etc.). Shipments reported to the U.S. Bu-



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reau of Mines totalled 134 million pounds of which only 21% (28,140,000 lb.) was for agricultural uses; 33% was for industrial and 46% for other uses, chiefly export.

Agricultural consumption as a fungicide and plant nutrient was well below the previous three-year average of 37 million pounds. On the basis of 3-year averages (Table 10) total domestic disappearance of copper sulfate has been maintained only in the third quarter of the year.

Ground sulfur is consumed in large quantities as a fungicide and miticide. No data are available annually as to the volume of production. The 1954 Census of Manufactures reports production of 313 million pounds of wet-table sulfur and sulfur dust compared to 158 million pounds in 1947. Pesticidal consumption of sulfur in California is believed to be 50 to 55 million pounds a year.

The consumption of pentachlorophenol as a wood preservative has

grown rapidly in the last several years, judging by reports from wood-treating plants (Table 11). This use of PCP represents only a part of the U.S. consumption. Furthermore, related compounds such as the tri- and tetrachlorophenols are of some importance in the control of wood-rot and mildew organisms. Zinc 2,4,5-trichlorophenolate is a seed treatment chemical.

Table 11—Pentachlorophenol Use by Wood Treating Plants

Year	Number of plants reporting	PCP used (1,000 lb.)
1951	282	2,984
1952	290	4,323
1953	288	5,398
1954	308	8,341
1955	317	10,503
1956	310	13,140*

\*Preliminary.  
Source: U.S. Forest Service.

The production of herbicidal preparations has grown extremely rapidly in recent years. In Table 12 are shown comparative dollar values for the production of these

Table 10—Copper Sulfate Disappearance, All Uses

Year	1 Quarter (1,000 lb.)	2 Quarter (1,000 lb.)	3 Quarter (1,000 lb.)	4 Quarter (1,000 lb.)	Total for calendar year (1,000 lb.)
1950	n.a.	n.a.	n.a.	n.a.	124,573
1951	33,305	34,602	24,687	29,855	122,449
1952	34,497	25,997	19,748	17,940	98,182
1953	30,484	17,331	13,850	18,187	79,852
1954	18,048	21,688	22,334	11,928	73,998
1955	24,674	23,360	18,026	16,664	82,724 1/
1956	24,468	13,702	19,526	18,466	76,162
Average 1951-53	32,762	25,977	19,428	21,994	100,161
Percent of annual average	32.7	25.9	19.4	22.0	100.0
Average 1954-56	22,397	19,583	19,962	15,686	77,628
Percent of annual average	28.9	25.2	25.7	20.2	100.0

1/ Reported final annual total for 1955 was 83,348,000 pounds.

Source: U. S. Bureau of Mines

and related materials by establishments primarily engaged in their manufacture.

Table 12—Value of Shipments of Pesticidal Preparations

Industry code	1954 Census Value (\$1,000)	1954 Census Relative importance %	1947 Census Value (\$1,000)	1947 Census Relative importance %
Insecticides, fungicides (agricul.) (2897)	177,956	65	83,356	70
Household insecticides, repellents (28991)	60,635	22	27,653	23
Weed killers (28992)	36,344	13	7,924	7
Total	274,935	100	118,933	100

Source: 1954 Census of Manufactures, Bull. MC-28H.

A nationwide survey indicates that 36% more farmers plan to use pre-emergence weed sprays in 1957 than in 1956, 25% more plan to use brush killers, and 7% more post-emergence weed killers. Only 3 percent more farmers plan to use insect control on crops.

Production of 2,4-D acid reported for the calendar year 1956 was appreciably less than in either 1954 or 1955. End-of-season inventories appeared up somewhat. During the 5-month period October, 1956 through February, 1957 an estimated 13,400,000 lb. of 2,4-D acid were produced, and the reported production of esters and salts was 9,518,000 lb. (acid equivalent, 6,922,000 lb.). 2,4,5-T production was higher than since 1953. Production of 2,4,5-T acid during the period from Oct. 1, 1956 through February, 1957 was 2,034,000 lb.

Shipments of sodium chlorate preparations for weed control in 1954 were reported in the Census of Manufactures to be 74,599,000 lb. Much of this material would contain only 40 to 45% chlorate. Assuming an average of 45%, the actual quantity of chlorate involved would amount to 34,900,000 lb. This compares favorably with the results of a survey by the U.S. Department of Commerce which showed herbicide and defoliant consumption of chlorate in 1954 to be 33,750,000 lb.

An intensive clean grain program directed largely at handling of grain on farms and in country elevators is being conducted by federal and state extension services and various agricultural organizations. No estimate is available as to the increased quantity of grain fumigants and protectants that may be involved.

However, the percentage of carloads of "weevily" wheat arriving at the Kansas City inspection point has gradually dwindled. At the beginning

of the program in 1950, receipts of "weevily" wheat averaged 5 to 10%. In August, 1956 the percentage was 2.9 and for the previous 6 months it ranged from 0.41 to 1.2. A marked increase has occurred in the use of calcium cyanide for grain fumigation in elevators.

Eradication of the Khapra beetle consumed 535,033 lb. of methyl bromide in 1956, of which 472,429 lb. were in California and Arizona. A small quantity of this fumigant was used in the program in New Mexico and 61,404 lb. were applied in Mexico through cooperation of the Mexican government. Fumigation of a certain feed plant is reported to have required 9½ acres of plastic covering, 35,000 clamps and 32,000 pounds of methyl bromide.

An estimated 26,860 lb. of ethylene dibromide have been used in 1956 in fumigating commodities subject to the Mediterranean fruit fly quarantine in Florida. Further quantities were used in Texas on citrus fruit to be moved to California.

Soil fumigants were stated recently to be a \$6,000,000 business in the U.S. Fumigation of tobacco acreage in North Carolina appears to be at about as high a point as it can go. In 1955 approximately 356,000 acres of tobacco land were fumigated in North Carolina, South Carolina and Georgia, of which 70% was in the first-named state. The leading soil fumigants on the basis of acreage treated and of volume used are dichloropropene-propylene dichloride mixture ("D-D") and ethylene dibromide.

Programs to control or eradicate nematodes in 1956 consumed about 270,000 lb. of "D-D" mixture (90 lb./acre on 3,000 acres) in peninsular Florida against the burrowing nematode and about 45,000 lb. methyl bromide (900 lb./acre on 50 acres) on Long Island in golden nematode control.

Red squill imports from the Mediterranean region have fallen to a low level. In the 5-year period 1952-56 inclusive, only 173,293 lb. came into the U.S. compared with 2,128,577 lb. in the previous 5 years.

Anticoagulant compounds now in commercial production for rodenticide preparations are: Warfarin (a coumarin derivative), Fumarin (a coumarin derivative, trade name "Ratafin 22") and "Pival" (2-pivalyl-1,3-indandione).

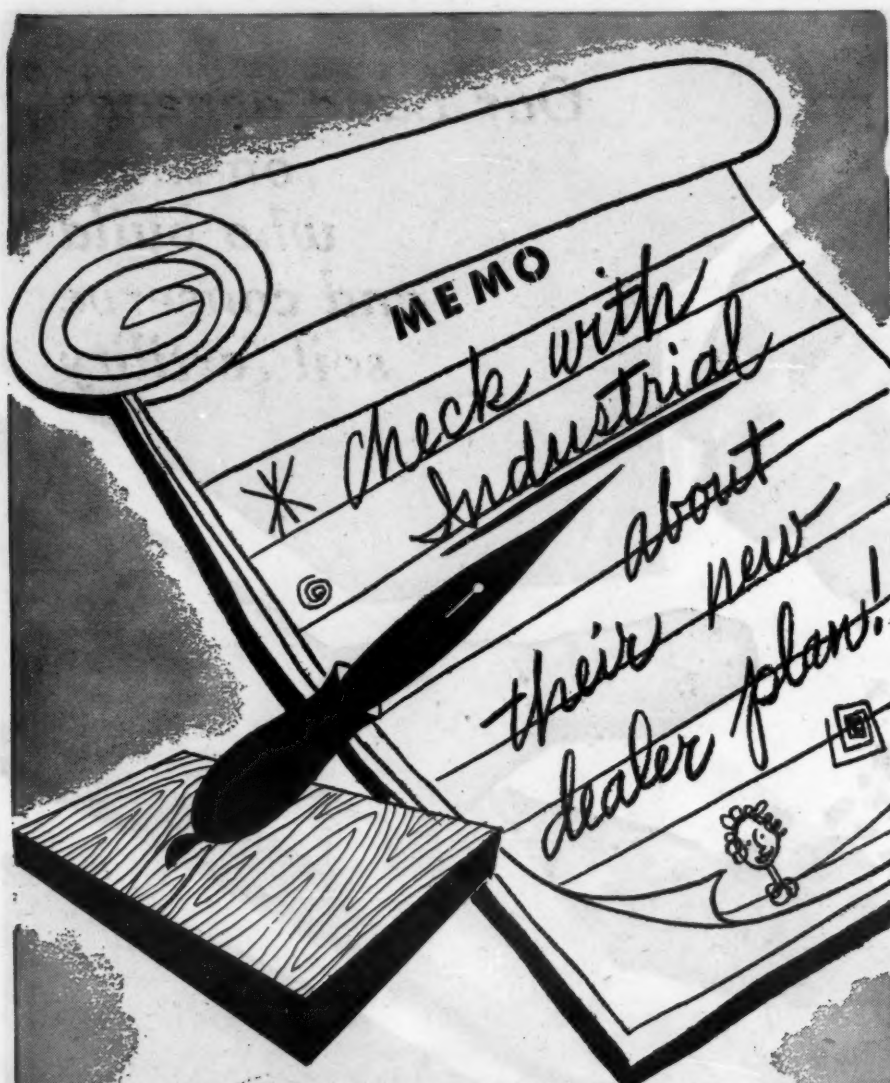
Coumachlor is a coumarin derivative (trade name "Tomorin") which appears to be available on the world market. Two indandione compounds (PMP and Diphacinone) are now be-

Table 13—Specified Solid Diluents Used in Pesticides<sup>1</sup>

Year	Talc and soapstone 1,000 lb.	Pyrophyllite 1,000 lb.	Fuller's earth 1,000 lb.	Kaolin 1,000 lb.	Bentonite 1,000 lb.
1952	104,560	70,162	152,232	57,890	8,116
1953	115,524	69,730	151,390	63,620	9,242
1954	96,634	81,950	142,488	57,938	5,162
1955	126,944	108,658	182,078	79,424	32,932

1/ Figures for 1956 not yet available.

Source: U. S. Bureau of Mines.



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Table 2—Pesticide Production by Calendar Years

Chemical	1953	1954	1955	1956 1/
	1,000 lb.	1,000 lb.	1,000 lb.	1,000 lb.
Benzene hexachloride (gross) 2/	57,363	76,934	56,051	85,307
Benzene hexachloride (gamma equivalent) 2/	8,800	11,500	10,700	14,369
Calcium arsenate	7,212 4/	2,758	4,232	25,028
Copper naphthenate	3,268	3,557	2,373	5/
Copper sulfate	145,888	130,616	156,176	133,616
2,4-D acid	25,928	30,184	34,516	28,132
2,4-D acid esters	18,826	16,994	22,879	23,178
2,4-D acid salts 3/	4,836	5,642	6,640	5/
DDT	84,366	97,198	129,693	138,963
Lead arsenate	14,196	15,620	14,776	11,526
Methyl bromide	6,167	5/	9,222	5/
Parathion	2,999	3,889	5,168	5/
Phenothiazine	3,700	3,437	6,202	5/
Phenyl mercuric acetate	154	598	692	5/
Sodium chlorate	86,442	75,644	93,226	110,136
2,4,5-T acid	5,281	2,697	2,925	5,131
2,4,5-T derivatives	5,386	3,883	3,793	5/
Tetraethyl pyrophosphate (40% basis)	229	361	515	5/
2,4,5-Trichlorophenol	5/	2,785	3,806	2/
Ziram	1,152	1,117	963	5/
Aldrin, chlordane, dieldrin, endrin, heptachlor, and toxaphene (combined production)	29,000	45,169	77,025	77,334

1/ Preliminary.  
2/ Not including lindane.  
3/ Sodium and amine salts.  
4/ Corrected figure.  
5/ Either not yet available or cannot be disclosed.  
Sources: U. S. Tariff Commission; U. S. Bureau of the Census; U. S. Bureau of Mines.

Table 3—Pesticide Exports by Calendar Years

Pesticide	1953	1954	1955	1956 2/
	1,000 lb.	1,000 lb.	1,000 lb.	1,000 lb.
Benzene hexachloride (gamma basis) 1/	1,838	2,286	4,234	3,411
Calcium arsenate	3,890	1,976	1,886	4/
Copper sulfate	65,317	59,525	74,765	60,353
DDT 2/	31,410	42,329	53,252	56,914
Lead arsenate	303	710	1,080	4/
Nicotine sulfate, 40 percent basis	332	200	397	5/
Pyrethrum extracts	188	138	111	5/
Sulfur, formulations 20 percent or more	26,861	13,508	10,818	20,291 6/
Sulfur, agricultural n.e.c.	23,330	31,914	26,432	19,651
Weed killers	11,954	14,829	15,799	10,849 4/
Insecticides, agricultural n.e.c.	66,788	94,571	111,366	17,217 5/
Insecticides, household and industrial	11,912	14,079	18,055	8,200
Disinfectants, household and industrial	8,176	7,596	7,415	5/
Total value 1/	\$1,000 48,850	\$1,000 62,506	\$1,000 78,585	\$1,000 81,137

1/ Contained in preparations of 1 percent or more; not including mixtures with 20 percent or more of sulfur.  
2/ Contained in preparations of 25 percent or more.  
3/ Preliminary.  
4/ Calcium arsenate, lead arsenate and nicotine sulfate included in "Insecticides, agricultural n.e.c."  
5/ Pyrethrum extracts included in "Insecticides, household and industrial."  
6/ Sulfur formulations included in "Sulfur, agricultural n.e.c."  
Paradichlorobenzene is not included in these totals.  
Source: U. S. Bureau of the Census.

Table 4—Pesticide Stocks, Sept. 30, 1956 (Technical Basis)

Material	: All stocks : Proportion : Percent that :			Notes
	: reported as : (tech. basis): 1956 stocks :	: of Sept. 30, : reported in : are of 1955 :	: 1956 : formulations : stocks (paired: : reports only) :	
	(1,000 lbs.)	(Percent)	(Percent)	
Aldrin, chlordane, dieldrin, endrin, heptachlor, toxaphene	30,432	25.9	162	
BHC, including lindane (gross basis)	20,187	12.0	200	(8 producers reported)
(Same, gamma basis)	(5,962)	(40.0)	(164)	
Calcium arsenate	4,783	--	404	(Includes 4,640 tons sulfate in producer stocks)
Copper fungicides	11,765	--	189	
2,4-D (acid basis)	10,965	66.9	133	(8 producers reported)
DDT	32,389	37.0	164	
Fungicides, grain and soil	25,886	--	--	
Lead arsenate	4,810	--	100	(Reported by 6 producers (Not including phosphorus chemicals)
Miticides	1,726	33.0	251	
Organic phosphorus compounds	6,901	36.3	119	
Sulfur, ground	34,728	49.9	119	
2,4,5-T (acid basis)	1,583	77.4	128	
Other fungicides	10,423	23.1	85	
Other insecticides	6,745	--	--	(Organic and inorganic; includes some defoliants)
Other weed killers	9,675	--	94	
Total	212,998	27.9	146	

ing distributed in the United States under experimental permit.

In 1955, pesticide formulators consumed 265,000 tons of talc, pyrophyllite, fuller's earth and kaolin, compared to only about 190,000 tons in 1954 and 200,000 in 1953. Twenty five percent of the 1955 use of all fuller's earth was in pesticides against 18% the previous year. Eleven percent of the talc and 35% of the pyrophyllite used in the United States in 1955 went into the mixing of pesticides (Table 13).

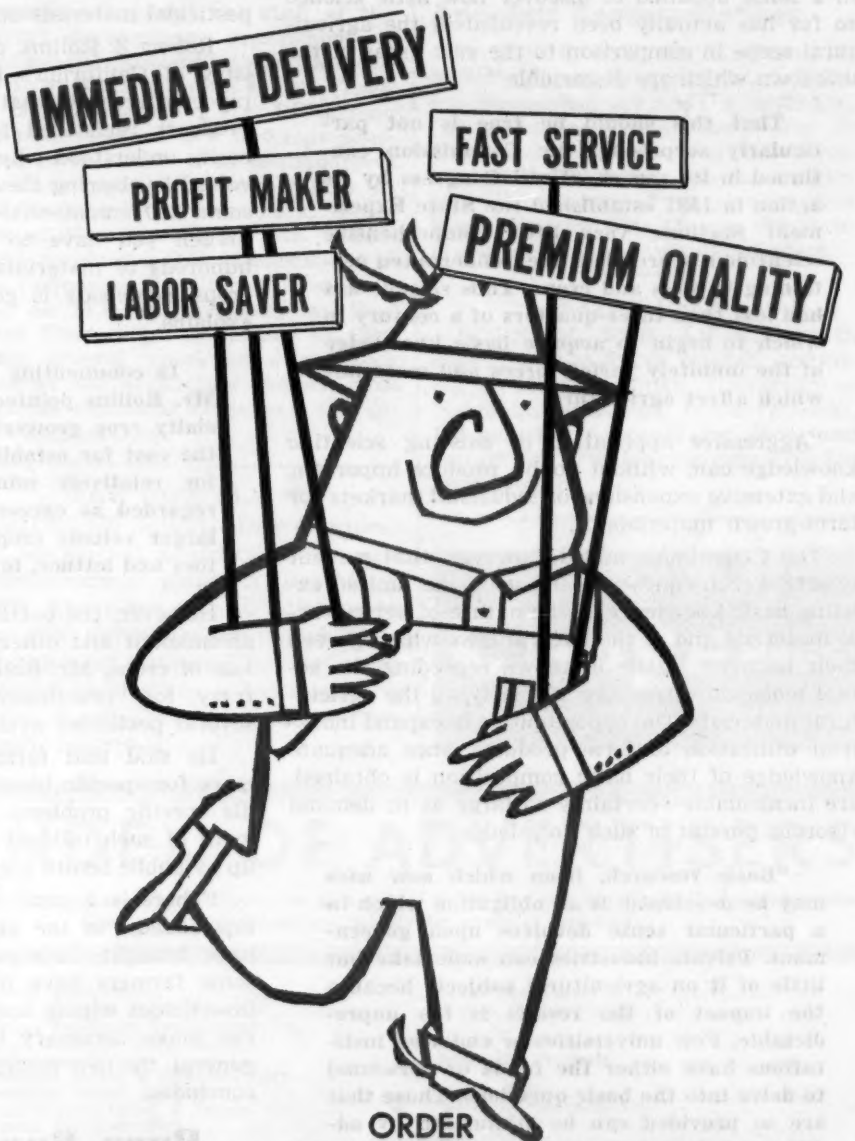
In an extensive survey of the types and quantities of surface-active agents used for specific purposes that was reported by Messrs. Pacifico and Ionescu in September, 1956, it was estimated that 12,000,000 lb. of emulsifiers and 4,000,000 lb. of wetting agents are used in the preparation of pesticides. Another 500,000 lb. were believed to be used in fertilizers, thus the total agricultural use was stated

to be 16,500,000 lb. Such agents in this class as are used as dairy cleaners and in food manufacture were estimated separately.

Chile Sodium Nitrate Output Drops in 1956

WASHINGTON—Production of sodium nitrate in Chile during 1956 totaled 1,158,437 metric tons, a decline of 25% from the previous year's output, according to the U.S. Department of Commerce. Much of the drop was due to a 3-month strike last summer against the leading producer. Fourth quarter production was near normal.

Shipments during 1956 exceeded output by more than 127,000 tons, as material was taken from stocks. Of the 333,165 tons exported during the fourth quarter, more than half was destined for the U.S. During the 1955-1956 nitrate year shipments of 521,398 tons to the U.S. comprised about 38% of the total exports.



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# Croplife

A WEEKLY NEWSPAPER FOR THE FARM CHEMICAL INDUSTRY

The regional circulation of this issue is concentrated in the Midwestern states.

## Find New Basic Facts, Commission Urges Congress

In its recent letter of transmittal to the Congress, the Commission on Increased Industrial Use of Agricultural Products made a plea for greater attention to basic research on the part of governmental agencies.

In the text of its letter, the Commission notes the great advancements in agriculture from the relatively primitive stage in which it stood less than a century ago. Despite these developments, the commission said that it has been "amazed and in a sense appalled to discover how little science so far has actually been revealed in the agricultural scene in comparison to the vast areas of the unknown which are discernible."

That this should be true is not particularly surprising, the Commission continued in its report. "Until Congress by its action in 1887 established the State Experiment Stations, very little comprehensive scientific research had been undertaken pertaining to soils and crops. Thus science has had less than three-quarters of a century in which to begin to acquire basic knowledge of the infinitely varied forces and materials which affect agriculture."

"Aggressive application of existing scientific knowledge can, without doubt, produce important and extensive expansions of industrial markets for farm-grown materials . . ."

The Commission added, however, that current scientific techniques "depend upon the limited existing basic knowledge of the nature of agricultural materials and of the natural laws which govern their behavior. Little is known regarding the actual molecular structure of nearly all the agricultural materials. The opportunities to expand industrial utilization of farm products, once adequate knowledge of their basic composition is obtained, are incalculable—certainly so large as to demand vigorous pursuit of such knowledge."

"Basic research, from which new uses may be developed, is an obligation which in a particular sense devolves upon government. Private industries can undertake but little of it on agricultural subjects because the impact of the results is too unpredictable. Few universities or endowed institutions have either the funds or personnel to delve into the basic questions. Those that are so provided can be stimulated by additional help . . ."

Among specific proposals in the Commission's report to the Congress were a number of interest to the trades which furnish various chemical products to agriculture. One suggestion offered in the report was that of experimenting with cereal grains as a possible source for antibiotics, herbicides, insecticides and synthetic herbicides.

In the case of these products, the report says, fermentation research should concentrate on objectives such as increasing the effectiveness of known pesticides by combining them with amino acids, dextrose, or other grain derivatives; development of new pesticides from grain materials; improved stickers to bond pesticides to foliage; chemicals with odors that attract certain insects to be mixed with poisons; and discovery of disease-producing microorganisms fatal to certain insects.

The problem of reducing damage to hides and skins by better control of insects, parasites, diseases and mechanical injuries was also noted. Losses to tanners, also reflecting in lower prices paid to the cattle raisers, amount to some \$100,000,000 a year, the report declares. It advocates the increased use of pesticides to reduce these losses which are termed "largely avoidable."

The report of this Commission, basic interest of which is to find new markets for agricultural products, takes in practically the entire field of

agricultural production in its scope. The points made should be regarded thoughtfully and viewed with an eye to the future. Any reasonable means for expanding the market horizons for agriculture should be profitable to the industry in the long run.

## Problem of Clearing Many Pesticides Being Overcome

The problem of getting clearance on new pesticides in California is apparently more acute than in most other states because of the broad variety of crops and the correspondingly large number of pesticidal materials utilized to protect these crops.

Robert Z. Rollins, chief of the bureau of chemistry of California's Department of Agriculture, reported recently that with some 12,000 pesticidal products registered for sale in the state, it is easily understood why a great deal of time is involved in clearing these products, residue-wise, on some 240 commercial crops grown in the state. "When you have to set residue tolerances for hundreds of materials on that many commercial crops, somebody is going to be left behind," he explains.

In commenting further on the situation, Mr. Rollins pointed out that it is the specialty crop growers who suffer most, since the cost for establishing residue tolerances for relatively minor crops is sometimes regarded as excessive as compared to the larger volume crops such as apples, tomatoes and lettuce, for example.

However, the bottleneck created by the Miller amendment and other regulations is not causing loss of crops, Mr. Rollins points out. On the contrary, for "practically every problem, there are several pesticides available," he explains.

He said that farmers are looking more and more for specific insecticides which can best handle specific problems. It is commercial development of such tailored products that is often held up by public health regulations.

"There is a small amount of truth," Mr. Rollins added, "in the idea that the new materials have brought their own problems. For instance, some farmers have mite infestations caused by insecticides wiping out predators, so one material can make necessary the use of another. But in general, the new pesticides are a clear benefit," he concludes.

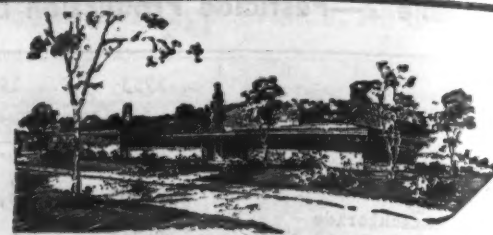
## Burn, Bury Containers!

"It is not difficult to find stacks of empty insecticide cans and bags in orchards in this area, especially those attractive one gallon cans that are labeled 'Systox.' Unless these packages are destroyed, they are likely to be reused for other purposes or picked up and played with by children."

"Insecticide containers should be punctured, broken or burned when emptied, in order to avoid the possibility of someone being poisoned. Care should be taken when destroying insecticide containers not to get the material on the body or to get in the smoke from fires that contain insecticide packages."—D. W. Hamilton, USDA Entomologist, Vincennes, Ind., in recent bulletin.

## Quote

"As an adjunct to the enforcement of quarantine regulations, we have long since come to the conclusion that an important factor in an effective prevention of spread program is linked with the suppression of high populations. Control programs may, therefore, go hand in hand with regulatory operations since the hazard of spread is greatly reduced when populations are low or nonexistent in areas from which commodities are moving that may carry a pest from one place to another."—Dr. E. D. Burgess, chief, plant pest control branch, ARS, USDA, Washington, D.C., at recent regional Agricultural Research Service meetings.



Croplife's Home Office

## Croplife



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CROPLIFE is a controlled circulation journal published weekly. Weekly distribution of each issue is made to the fertilizer manufacturers, pesticide formulators and basic chemical manufacturers. In addition, the dealer-distributor-farm adviser segment of the agricultural chemical industry is covered on a regional (crop-area) basis with a mailing schedule which covers consecutively, one each week, four geographic regions (Northeast, South, Midwest and West) of the U.S. with one of four regional dealer issues. To those not eligible for this controlled distribution Croplife subscription rate is \$5 for one year (\$8 a year outside the U.S.). Single copy price, 25¢.

LAWRENCE A. LONG

Editor

DONALD NETH

Managing Editor

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WASHINGTON CORRESPONDENT—John Cipperly, 604 Hibbs Bldg., Washington, D. C. (Tel. Republic 7-8534).

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# MEETING MEMOS

June 18-20—Northeastern Branch, American Society of Agronomy, Summer Meeting, University of Massachusetts.

June 26—North Central States Association of Dairy, Food, Drug, Feed, Fertilizer and Pesticide Officials, Annual Meeting, Sheraton Martin Hotel, Sioux City, Iowa.

July 30-31—Fertilizer Meetings and Experiment Station Tours, Auburn, Ala. and Thorsby, Ala., Sponsored by the Alabama Agricultural Experiment Station and Alabama Soil Fertility Society.

Oct. 7-8—Western Agricultural Chemicals Assn., Fall Meeting, Villa Hotel, San Mateo, Cal., C. O. Barnard, 2466 Kenwood Ave., San Jose 28, Cal., Executive Secretary.

**EDITOR'S NOTE**—The listings above are appearing in this column for the first time this week.

June 6-8—Manufacturing Chemists Assn., Annual Meeting, Greenbrier Hotel, White Sulphur Springs, W.Va.

June 9-12—National Plant Food Institute, annual meeting, Greenbrier Hotel, White Sulphur Springs, W. Va.

June 17-19—Fifteenth Annual Convention of the Association of Southern Feed and Fertilizer Control Officials, Dinkler-Tutwiler Hotel, Birmingham, Ala., Bruce Poundstone, Kentucky Agricultural Experiment Station, Lexington, Ky., Secretary-Treasurer.

June 18-20—Pilot Plant Demonstration of Developments in Fertilizer Technology, Tennessee Valley Authority, Wilson Dam Laboratories, Sheffield, Ala.

June 23-26—American Society of Agricultural Engineers, Golden Anniversary meeting, Michigan State University, East Lansing, Mich.

June 26-29—Eighth Annual Fertilizer Conference of the Pacific Northwest, Benson Hotel, Portland, Ore. B. R. Bertramson, Washington State College, Pullman, Wash., chairman.

June 29-31—Pacific Branch, Entomological Society of America, 41st Annual Meeting, Multnomah Hotel, Portland, Ore., H. H. Kelfer, 1112 Swanston Drive, Sacramento 14, Cal., Secretary-Treasurer.

July 4-5—Alabama Seedsmen's Assn., Battle House, Mobile, Ala.

July 10-14—Plant Food Producers of Eastern Canada, Manoir Richelieu, Murray Bay, Quebec.

July 11-12—Great Plains Anhydrous Ammonia Meeting, Kansas State College, Manhattan, Kansas.

July 17-19—Southwestern Fertilizer Conference and Grade Hearing, Galvas Hotel, Galveston, Texas.

Aug. 13-14—Ohio Pesticide Institute, Summer Meeting, Ohio Agricultural Experiment Station, Wooster, Ohio, J. D. Wilson, Ohio Agricultural Experiment Station, Secretary.

Aug. 14—Connecticut Agricultural Experiment Station Field Day, Mt. Carmel, Conn. Dr. James G. Horsfall, New Haven, director.

Aug. 28-31—Soil Conservation Society of America, Annual Convention, Astor, Cal.

Sept. 5-8—Great Lakes States Anhydrous Ammonia Meeting, Michigan State University, East Lansing, Mich.

Sept. 8-15—International Congress of Crop Protection, Hamburg, Germany.

Oct. 2-4—Eleventh annual Beltwide

Cotton Mechanization Conference, Shreveport, La.

Oct. 3-5—Pacific Northwest Plant Food Assn., Annual Convention, Sun Valley, Idaho, Leon S. Jackson, Lewis Bldg., Portland 4, Ore., Secretary.

Oct. 14—Sixth Annual Sales Clinic of the Salesmen's Assn., American Chemical Society, Hotel Roosevelt, New York.

Oct. 17—Conference on Chemical Control Procedures for Industry Chemical Control Analysts, Shoreham Hotel, Washington, D.C. Sponsored by National Plant Food Institute.

Oct. 29-30—Seventh Annual Northwest Garden Supply Trade Show of Oregon Feed & Seed Dealers Assn., Portland, Ore. Masonic Temple.

Oct. 29-31—Entomological Society of Canada and Entomological Society of Alberta, Annual Meetings, Lethbridge, Alberta.

Nov. 3-5—California Fertilizer Assn. 34th Annual Convention, St. Francis Hotel, San Francisco. Sidney H. Bierly, General Manager, 475 Huntington Drive, San Marino 9, Cal.

Nov. 6-8—Fertilizer Industry Round Table, Sheraton Park Hotel, Washington, D.C.

Nov. 17-19—National Fertilizer Solutions Assn., Annual Convention, Netherland-Hilton Hotel, Cincinnati, Muriel F. Ooille, 2217 Tribune Tower, Chicago 11, Ill.

Dec. 1-3—Southern Seedsmen's Assn., Jung Hotel, New Orleans.

Dec. 2-5—Entomological Society of America, 5th Annual Meeting, Hotel Peabody, Memphis, Tenn., R. H. Nelson, 1530 P St., N.W., Washington 5, D.C., Executive Secretary.

Dec. 2-5—Cotton States Branch, Entomological Society of America, 32nd Annual Meeting, Hotel Peabody, Memphis, Tenn., M. E. Merkl, Box 202, Leland, Miss., Secretary-Treasurer.

Dec. 9-12—Chemical Specialties Manufacturers Assn., Hollywood Beach Hotel, Hollywood, Fla.

Dec. 10-12—North Central Weed Control Conference, 14th Annual Meeting, Hotel Savory, Des Moines, Iowa. Lyle A. Derscheid, agronomy department, South Dakota State College, Brookings, Program Chairman.

Dec. 11-13—Agricultural Ammonia Institute, Seventh Annual Meeting, Hotel Marion, Little Rock, Ark., Jack F. Oriswell, Claridge Hotel, Memphis, Executive Vice President.

Dec. 12-13—Beltwide Cotton Production Conference, Hotel Peabody, Memphis, Tenn.

1958

Jan. 7-8—Texas Fertilizer Conference, Texas A&M, College Station, Texas.

Jan. 12-15, 1958—Weed Society of America and Southern Weed Conference, joint meeting, Peabody Hotel, Memphis, Tenn.

Jan. 21-23—California Weed Conference, San Jose, Cal.

Feb. 13-14—Agronomists-Industry Joint Meeting, Edgewater Beach Hotel, Chicago, sponsored by the Middle West Soil Improvement Committee, Z. H. Beers, 228 N. LaSalle St., Chicago 1, Ill., Executive Secretary.

March 4-5—Western Cotton Production Conference, Hotel Cortez, El Paso, Texas, Conference Sponsored by the National Cotton Council and the Five State Cotton Growers Assn.

July 18-19—Southwest Fertilizer Conference and Grade Hearing, Bucanier Hotel, Galveston, Texas.



Rudolph DiGiacomo

**CSC APPOINTMENT**—Rudolph DiGiacomo has joined the staff of the market development department of Commercial Solvents Corp., according to an announcement by Dr. Frank E. Dolan, manager. Mr. DiGiacomo has been assigned as a field representative in the East, with headquarters at the company's general offices at 260 Madison Ave., New York. A native of New York City, Mr. DiGiacomo received a B.S. in chemistry at the College of the City of New York and an M.S. in chemistry at New York University. He comes to CSC after several years as a research chemist and production chemist with Pharma Chemical Corp. and the Interchemical Corp.

## NEW DOW PLANT

**MIDLAND, MICH.**—Dow Chemical Co. has started construction on a new petrochemicals plant at Bay City, Mich. The plant will be adjacent to the Bay Refining Corp. which Dow acquired last summer. The chief product will be ethylene, a basic building block in the manufacture of Dow plastic materials.

## INDEX OF ADVERTISERS

The index of advertisers is provided as a service to readers and advertisers. The publisher does not assume any liability for errors or omissions.

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Ashcraft-Wilkinson Co.	Mississippi River Chemical Co.
Atkins, Kroll & Co.	Monsanto Chemical Co.
Baughman Manufacturing Co., Inc.	National Potash Co.
Beard, J. B., Co.	Naugatuck Chemical Div., U. S. Rubber Co.
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Classified advertisements accepted until Tuesday each week for the issue of the following Monday.

Rates: 15¢ per word; minimum charge \$2.25. Situations wanted, 10¢ a word; \$1.50 minimum. Count six words of signature, whether for direct reply or keyed care this office. If advertisement is keyed, care of this office, 20¢ per insertion additional charged for forwarding replies. Commercial advertising not accepted in classified advertising department. Advertisements of new machinery, products and services accepted for insertion at minimum rate of \$10 per column inch.

All Want Ads cash with order.

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**PRESIDENT, AGRICULTURAL CHEMICAL** manufacturing company, with 15 years' experience, research development, sales and management, desires position in management or sales in a foreign field. Experience in South America and Africa. Chemistry, entomology, plant pathology, doctorate training. Address Ad No. 2710, Croplife, Minneapolis 1, Minn.

## Chapin Manufacturing Appoints Representatives

**BATAVIA, N.Y.**—R. E. Chapin Manufacturing Works, Inc. of Batavia, has named the E. H. Koepke Co., Cleveland, as its representative in Ohio and Kentucky and the Johnston Co., Pittsburgh, as representative in western Pennsylvania and West Virginia. The Chapin firm produces sprayers, pumps and dusters.

## WATER USERS

**LINCOLN, NEB.**—Weed growth uses from 2 to 3% of rainfall, according to Harold Gilman, University of Nebraska extension conservationist. Evaporation accounts for 60% and run-off for 10%, leaving only 27% for crop growth.

REMEMBER TO ORDER

# CHASE BAGS

There's None Better!








# How Hercules Helps **YOU** Sell More Toxaphene



This toxaphene advertisement is typical of those being read by more than one million farmers—regular readers of such agricultural publications as "Progressive Farmer," "Farm & Ranch," and other farm magazines. Eye-catching advertisements like this plus local toxaphene promotion can help you increase toxaphene sales and profits.





Other ads in the series will emphasize the importance of toxaphene in controlling specific insect pests on a variety of crops. This continuing advertising program in leading agricultural publications, plus local radio and television announcements, backed up by your use of the many dealer aids available from Hercules, can help make '57 a banner sales year for you.

HOX87-7

Cotton farmers can avoid late season trouble by producing bolls  as quickly as possible. Young cotton can be ruined by cutworms, stunted and weakened  by thrips, fleahoppers, and overwintered boll weevils.

The keystone  of early cotton production is a thorough insect control program *now!* If you don't control these early insects  now, you'll have to produce your bolls later in the  season when insect populations are high and expensive to control.

Toxaphene is the keystone  of every early insect control program.  Toxaphene controls early season insect pests effectively and economically.

Don't lose a single square  to early insect pests. Get your cotton off to a fast start with an insect control program based on  toxaphene. Your dealer can supply you with toxaphene dusts  or spray materials  now!

## TOXAPHENE

a product of the Agricultural Chemicals Division  
**HERCULES POWDER COMPANY**  
931 Market Street, Wilmington 99, Delaware





# Croplife

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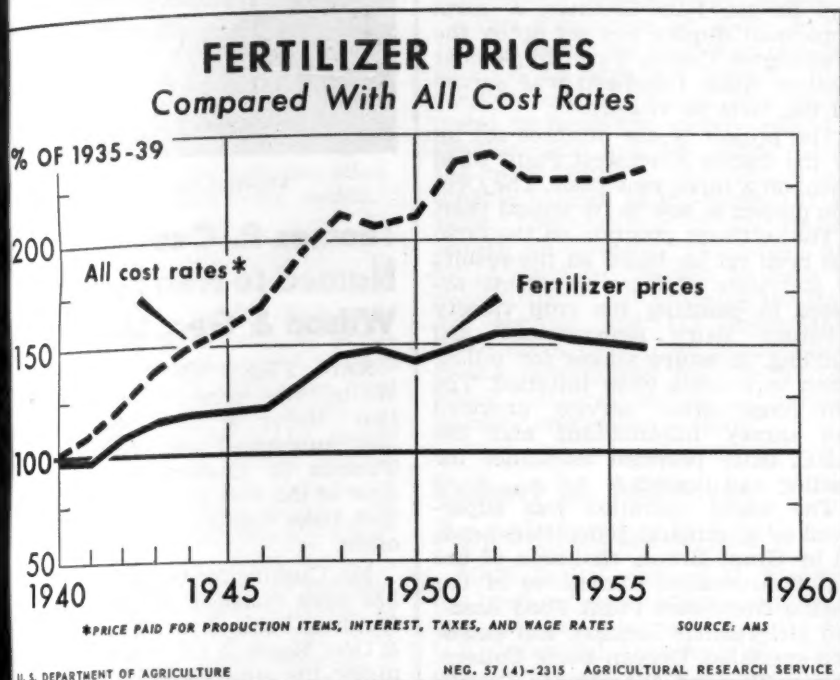
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No. 22



**A BETTER BUY**—Fertilizer is a better buy today than it was in 1940, the U.S. Department of Agriculture points out in the 1957 outlook issue of the Farm Cost Situation, released late in May. Prices received for farm products are more than twice as high as they were in 1940, while the index of prices paid by farmers for fertilizer is only 53% higher now than it was in 1940. The index of prices paid for fertilizer this spring is unchanged from a year earlier, USDA reported. It is the only farm-production cost item that has not had a net increase in price during the past year. Generally prices paid by farmers this spring are up about 5% over those of a year ago.

## Chemists Study New Analysis Methods at Purdue Conference

LAFAYETTE, IND.— Fifty fertilizer industry and state control chemists, meeting at Purdue University, May 17-18, made a first-hand study of the merits of two new chemical analysis methods important to the fertilizer industry, in connection with a program sponsored jointly by the chemical control committee of the National Plant Food Institute and the university's biochemical department.

The 2-day school on chemical analysis was organized by Dr. E. D. Schall and Dr. F. W. Quackenbush of Purdue and Vincent Sauchelli, chairman of the Institute's chemical control committee. Thirty five chemists from the fertilizer industry and 15 from state control laboratories attended the sessions.

Numerous methods are available to chemists for the determination of potassium in fertilizers and potash materials, among which the flame photometric and the chloroplatinate methods are widely used. Although the flame photometric has not yet been approved officially by the Association of Official Agricultural Chemists, it is rapid and useful where the potassium content is known to be small, while the chloroplatinate method, officially approved, is a gravimetric method and is time consuming and expensive to carry through, it was stated. The new method demonstrated at the Purdue school is of the volumetric type. It is less expensive and compares favorably with the flame photometric method in speed and with the gravimetric method in accuracy, the conference was told.

One of the purposes of the school

was to familiarize the fertilizer chemical analysts with the procedures so that when a collaborative study on the method is later organized, the participants will be able to follow the procedures more uniformly than is customarily the case.

The official method for determining nitrate nitrogen in the presence of a high content of chlorides has been criticized because nitrogen losses occur which penalize the manufacturer. New, modified procedures have been developed by several investigators.

Purdue University's biochemistry department demonstrated its modified procedure at this school. The attending chemists had the opportunity

(Continued on page 8)

## 17 Million Gallons of Liquid Sanitary Insecticides Sold in 1956, CSMA Says

—See Tables On Page 8—

CHICAGO—Nearly 17 million gallons of liquid and slightly more than seven million pounds of powder insecticides were sold in the U.S. last year to keep human beings and their animal charges ahead of the bugs, the Chemical Specialties Manufacturers' Assn. has reported.

Space sprays, chief weapon against flying insects like flies and mosquitoes, chalked up the biggest sales gain among all types of sanitary insecticides, accounting for 4,188,304 gallons or about a quarter of all liquid sales, as compared with 1,797,515 gallons in 1955. The 1956 gallonage of sanitary space sprays

## AP&CC Doubling Granular Potash Output at Trona

LOS ANGELES—American Potash & Chemical Corp. is doubling production capacity of granular potash at its Trona, Cal., plant, according to a joint announcement by E. M. Kolb, AP&CC eastern general sales manager of heavy chemicals, and Frank McGrane, AP&CC sales manager of agricultural chemicals.

The project—which will cost approximately \$750,000—is part of the company's current \$3,500,000 improvement program at the Trona plant. Installation of the new potash granulating units is being done in two parts, with the first half now nearing completion and the final half scheduled to be completed by the end of 1957.

"We believe the new granulating units will permit us to fill all of our national requirements for the 1958 planting season," the announcement said.

## Hercules Producing New Insect Repellent

WILMINGTON, DEL. — Hercules Powder Co. has announced that its new plant for the production of meta "Delphene," new insect repellent, is in commercial production at the Hercules naval stores plant site in Brunswick, Ga. Company officials said that "production in the new plant will be substantially increased during the coming weeks to meet unusually heavy demands for the product."

Meta "Delphene" is diethyl metatoluamide.

## NAC Annual Meeting Scheduled for Sept. 4-6

WASHINGTON—The National Agricultural Chemicals Assn. will hold its annual meeting in the Essex and Sussex, Spring Lake, N.J., Sept. 4-6. L. S. Hitchner, NAC executive secretary, has announced. John A. Rodda, manager, Fairfield Chemical Division, Food Machinery and Chemical Corp., is program chairman for the meeting.

## South Carolina Phosphate Tests Look Promising

### One to Three Months Needed to Complete Exploratory Program

BEAUFORT, S.C.—"Encouraging" results have been obtained in an investigation of phosphate ore deposits within Beaufort County tidelands, the Beaufort Mining and Development Co. has reported.

However, "our work is far from complete," according to R. G. Politzer of Beaufort, secretary of the company.

A report last month noted that from one to three months will be required for completion of the exploration and survey program, purpose of which is to accurately determine the quantity and composition of deposits, and whether it will be economically profitable to mine and process the ore deposits.

(Continued on page 17)

## Firm Looks to Flaming Gorge for Phosphate Power

SALT LAKE CITY—Major chemical companies are discussing an offer to purchase energy from the Flaming Gorge Dam for use in production of elemental phosphorus near Vernal, Utah, it was reported in Salt Lake City recently.

The report came to light with the disclosure that San Francisco Chemical Co. of Montpelier, Idaho, had solved successfully the beneficiation problems necessary to utilization of some 700 million tons of phosphatic material, 15 miles north of Uintah County community.

With that problem solved, the affiliate of Stauffer Chemical Co. is now faced with the problem of early electrical energy necessary for early conversion of the phosphate deposits.

Flaming Gorge, located over the Utah line in Wyoming, has a potential of about 80,000 kilowatts of energy. This is a variable potential, as the dam, while producing energy, also is a key part of river control.

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